THE RUBBER AGE

ESTABLISHED 1917

COVERS ALL PHASES OF THE PRODUCTION AND MARKETING OF CRUDE RUBBER AND THE MANUFACTURE AND DISTRIBUTION OF RUBBER GOODS

Vol. 38 JANUARY, 1936 No. 4

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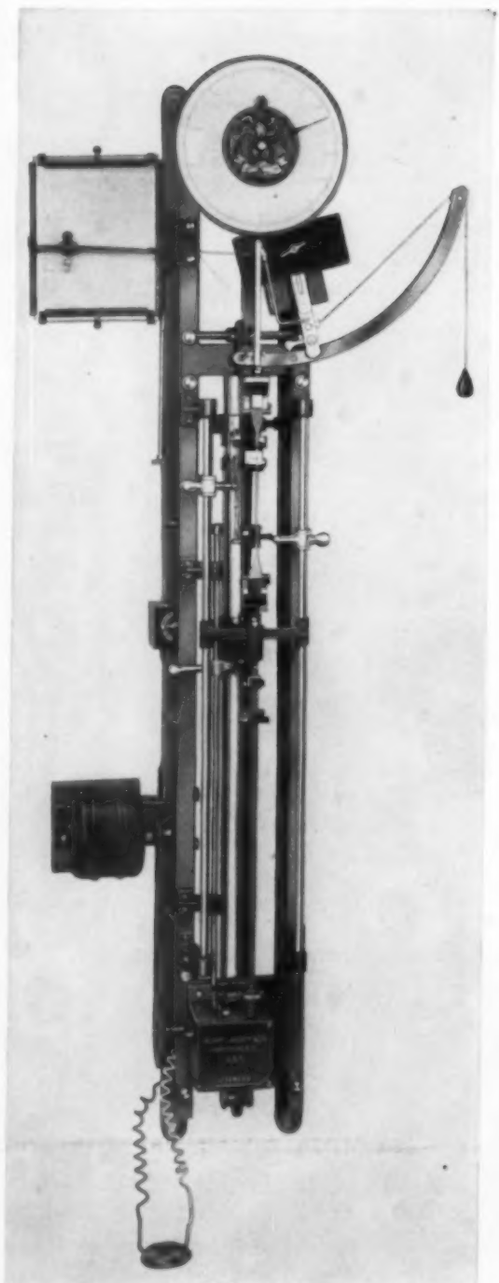

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The Recovery of Solvent Vapors by Adsorption

—The Acticarbone Process

By E. L. Luaces, Ch.E.
Consulting Specialist on Adsorption

THE recovery of solvents evaporated in the course of manufacturing operations has been a very important matter to a great number of industries. Processes for recovery by compression and refrigeration and by liquid *ab*sorption of the solvent vapors have been used extensively for many years, and more recently wide use has been made of solid *adsorption* using activated carbon as the *ad*sorbent.

This last process has won wide acceptance in the rubber industry in particular, although many other fields have been making extensive use of it during the last fifteen years. It has reached a high degree of development particularly in Europe, where the high cost of even the common petroleum solvents makes it imperative to obtain the very highest solvent recovery yield at the very lowest possible cost. Freedom from the payment of royalties and license fees has contributed materially towards a more rapid and complete adoption of activated carbon recovery in European plants.

It is expected that because during the last few months it has become possible for American manu-

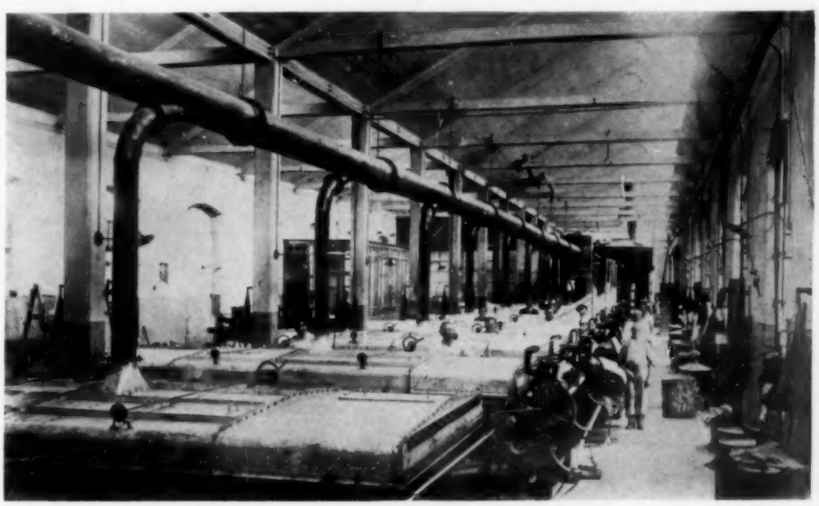


FIG. 1.—The hood over each spreader is shown as connected to the captation manifold which delivers the solvent-laden air to the filter, fire-damper and adsorber at the far end of the room.

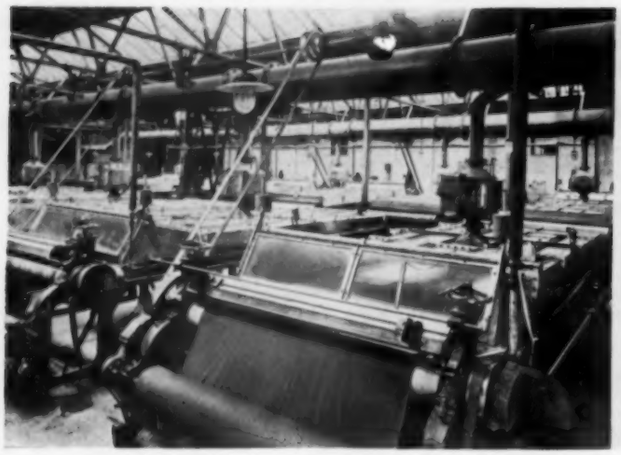


FIG. 2.—These spreaders are provided with individual filters equipped with control instrument to regulate the vapor concentration in the solvent-laden air.

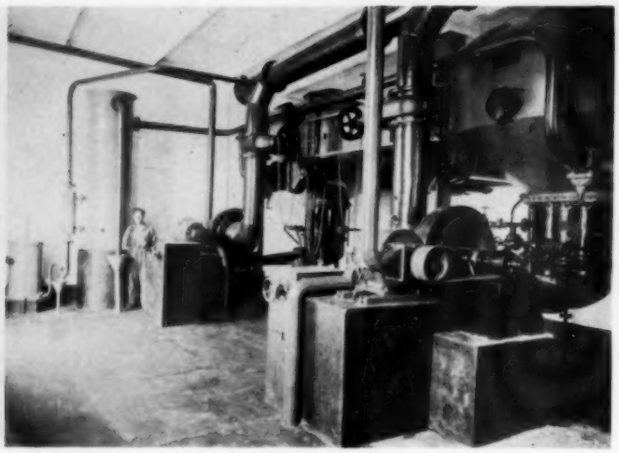


FIG. 4.—Typical two-adsorber installation with condenser and decanter operating in a rubber works. This plant recovers over 1100 gallons of benzine per day.

facturers to make use of a highly advanced European process—which has been adopted to American conditions and is engineered and installed by American engineers—without the necessity of paying tribute, the use of adsorption recovery with activated carbon will increase to an extent commensurate with the high efficiency and low cost recovery of which it is capable.

This process, known as the Acticarbone Process, was developed in France nearly fifteen years ago as the result of the urgent need of a large and prominent organization engaged in the recovery of gasolene from natural gas, for a means of extracting this gasolene safely and economically with activated carbon. During the last decade it has developed very rapidly and today it is to be found in practically every part of the world recovering all types of industrial solvents amenable to adsorption recovery.

In its present state of development the process is extremely simple and safe in its operation. The initial cost of the installation is decidedly lower than that for the older mechanical and liquid absorption systems. The operating costs are substantially lower and the efficiency extremely high. The solvent is of the highest quality as recovered and does not have to undergo any purification before re-use, but perhaps the most attractive feature of the process is its ability to successfully operate with solvent vapor concentrations away beyond the effective range for the older processes.

Practical experience has indicated that it is possible to operate with a high overall recovery yield when the concentration of solvent vapor in the vapor-laden air is from 5 grains per cubic foot down to 0.5 grain, and in extreme cases even as low as 0.09 grain. This makes it possible to aspirate large volumes of air, thereby increasing the captation or vapor collecting efficiency of the installation and permitting the operation of the recovery plant itself with a solvent vapor concentration in the solvent-laden air far below the lowest explosion limit. The factor of safety introduced thereby has resulted in many cases in a reduction of from 10% to 15% in the insurance premiums paid.

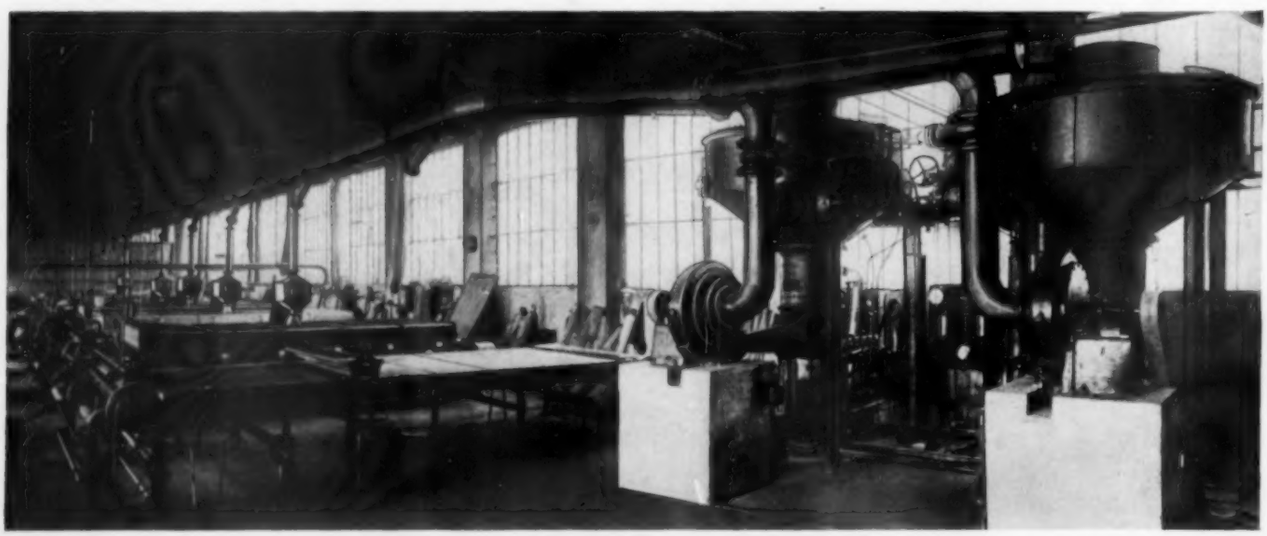


FIG. 3.—View of a complete recovery installation comprising hoods on horizontal spreaders, individual filters and fire-dampers for each spreader, the captation manifold, and two adsorbers with individual captation and circulating fans. Condenser and decanter are obscured.

Since the per cent overall recovery efficiency is determined by dividing the total amount of solvent recovered for re-use into the amount evaporated, the most important factor in obtaining the highest overall recovery yield is the captation or collection of the solvent vapors. It is necessary to provide the equipment from which the solvent evaporates, with suitably designed and fitted hoods or covers which will not make any part of the machine or apparatus inaccessible, or in any other way interfere with its operation. Once this has been done the rest is comparatively simple.

The recovery installation consists of suitable filtering apparatus having a specially designed compartment to arrest the propagation of any accidental spark or flame originating in the workrooms; the adsorbers containing the activated carbon; a condenser to condense the solvent vapors removed from the adsorbent, and a decanter to separate the solvent from the condensed steam when the solvent is immiscible with water. If

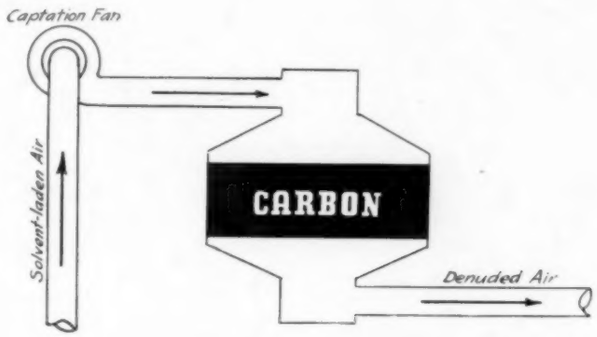


FIG. 5.—The solvent-laden air is put through the activated carbon bed by the captation fan and the denuded air evacuated outside the building or returned to the workrooms. A pressure of from 4 to 5 inches of water proves sufficient.

the solvent being recovered is partly or wholly miscible with water, an automatic continuous rectifying column is provided with the installation.

Figures 1 and 2 show typical captation arrangements in two representative installations recovering solvents evaporated in horizontal spreading machines in the rubber industry. In Figure 1 it will be noted that each hood or cover on each individual spreader is connected to the manifold overhead which delivers the solvent vapors to the adsorber located at the far end of the workroom. The brickwork directly before the adsorber supports the filter and fire-damper apparatus.

In Figure 2 each individual spreader is shown

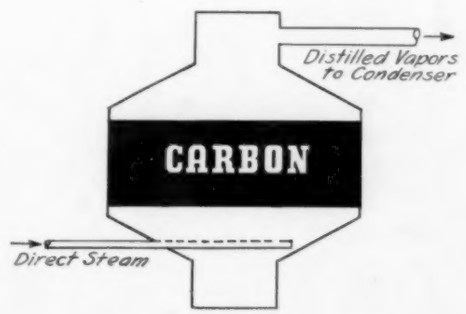


FIG. 6.—Steam is injected at the base of the adsorber to drive out or distill the adsorbed solvent. The vapors are taken off and condensed.

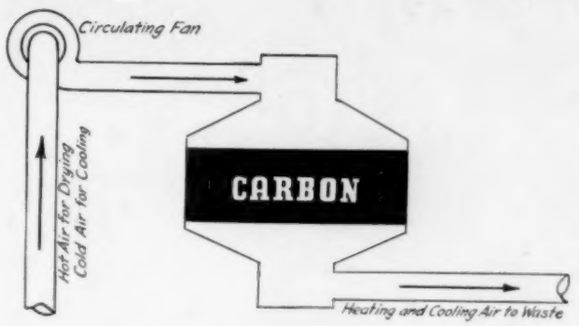


FIG. 7.—After steaming the activated carbon is dried by passing warmed air through the adsorber. It is then cooled with air.

equipped with its own filter and fire-damper provided with regulating devices which regulate the concentration of solvent vapor in the solvent-laden air by controlling the volume of air aspirated. This arrangement is more flexible, since it is possible to isolate one or more spreaders without interfering with the recovery process or the operation of the plant itself.

Figure 3 illustrates a typical installation comprising hoods or covers on horizontal spreaders provided with individual filters and fire-dampers, the captation manifold, and at the extreme right, two adsorbers with individual captation and circulating fans. The condenser and decanter are obscured from view but the complete arrangement is shown in Figure 4 which illustrates a similar two-adsorber installation operating in a rubber works. The condenser and decanter are shown at the extreme left.

The solvent-laden air, after being filtered to remove any dust or finely divided matter which it might carry

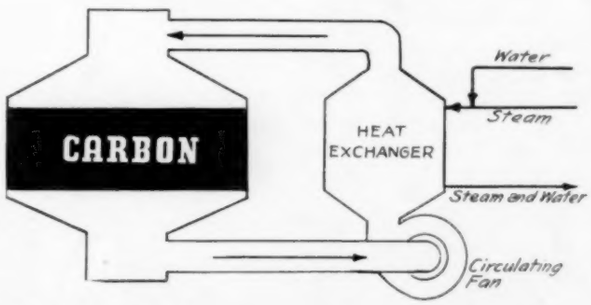


FIG. 8.—In closed circuit regeneration the atmosphere within the adsorber is heated by circulation through a heated heat exchanger. Steam is then applied without condensation taking place. The activated carbon is then cooled down by circulating the atmosphere within the adsorber through a cooled heat exchanger.

in suspension, is propelled by the captation fan at a pressure of about 4 or 5 inches of water, through a bed of highly activated carbon held in the adsorber, as shown in Figure 5. The adsorption will go on for a period of from not less than 30 minutes up to several hours—or even a whole day or week for the smaller installations and those larger ones which are only operated during short intervals of time. When the *practical* saturation point has been reached, the flow of solvent-laden air is diverted to the second adsorber and the first enters the second stage of the recovery process—regeneration or distillation.

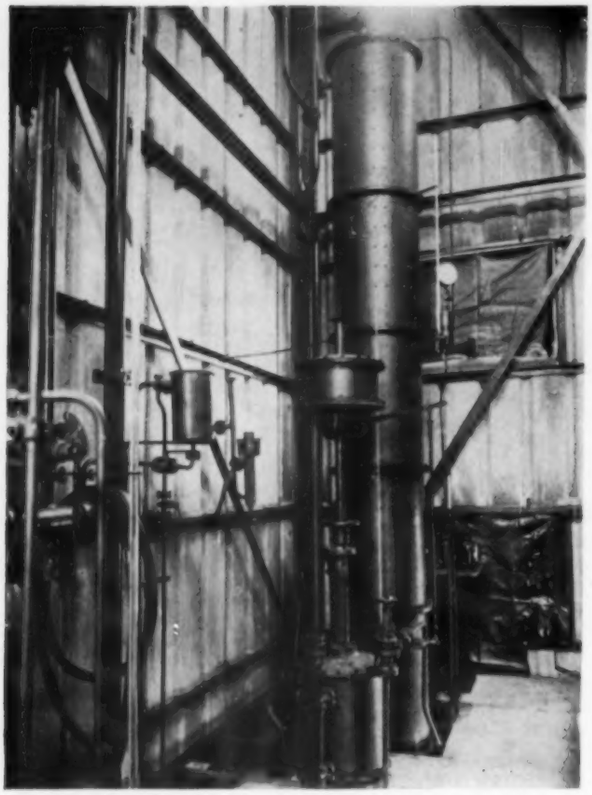


FIG. 9.—Where water miscible solvents are used an automatic continuous rectifying column is provided. This one is installed in an artificial leather plant.

The purpose of regeneration is to remove from the activated carbon the vapors which it has adsorbed and is retaining in its pores. To this end the temperature of the activated carbon is increased sufficiently to distill out the adsorbed solvent. Two schemes are in use for accomplishing this. Open circuit regeneration, shown in Figure 6, is carried out simply by injecting low pressure steam directly into the adsorber and continuing the application until all of the adsorbed solvent has been vaporized and driven out. When this operation has been completed the activated carbon is quite moist due to steam condensation in bringing up the temperature of as poor a conductor of heat as activated carbon. Moisture is highly detrimental to solvent vapor adsorption and if left in the activated carbon its efficiency would suffer very definitely. For this reason the activated carbon is dried with warm air until all the moisture has been driven out and is then cooled down to room temperature with cooled air, as in Figure 7.

During recent years use has been made of closed circuit regeneration. When the adsorber has become saturated, the inlet and outlet valves are closed and the atmosphere within the adsorber is circulated by means of a circulating fan through a heat-exchanger to which steam is being applied, and then returned to and put through the adsorber, continuing the cycle until the activated carbon has become sufficiently hot not to condense steam brought into direct contact with it. The circulating fan is then shut down, the steam flow through the heat-exchanger is stopped, and steam is opened directly into the adsorber as in open circuit regeneration. When all the vapor has been driven out, the inlet and outlet valves are closed once again, cooling water is made to flow through the heat exchanger and the fan is made to circulate the atmosphere within the adsorber through the cooled heat-exchanger and back through the adsorber until the temperature of the carbon drops to the proper operating level. Closed circuit regeneration is graphically illustrated in Figure 8.

Whether open or closed circuit regenerating is used, the distilled vapors are put through a suitable condenser forming part of the recovery installation. If the solvent is immiscible with water, as is the case with benzine, naphtha, benzene, trichlorethylene, et cetera, the decanter separates the water, which is discharged into the sewer, from the solvent, which is ready for re-use. If the solvent should happen to be miscible with water—as is the case in plants using ethyl acetate, alcohols, acetone, and similar solvents—the condensate is delivered to an automatic continuous rectifying column, such as shown in Figure 9, where the solvent is separated from the water. In some cases a miscible and an immiscible solvent form part of the solvent mixture used. In such cases, the decanter separates the immiscible solvent, and the water containing the miscible solvent is delivered to the rectifying column when the solvent is separated from the water.

While solvent recovery installations have been made with capacities as low as 8 gallons *per day*, there is no upper limit to the capacity for which an installation might be designed, and some in operation recover millions of gallons annually. Either single- or multiple-adsorber installations can be made. Where the amount of solvent to be recovered is very small the plant is designed, as in Figures 10 and 11, to operate six, twelve or more hours without regeneration. In such cases the regeneration might be carried out during the lunch hour and at the close of day, or once only after working hours, depending upon local conditions. Recovery plants have been designed to operate fully automatically on a predetermined cycle without any at-

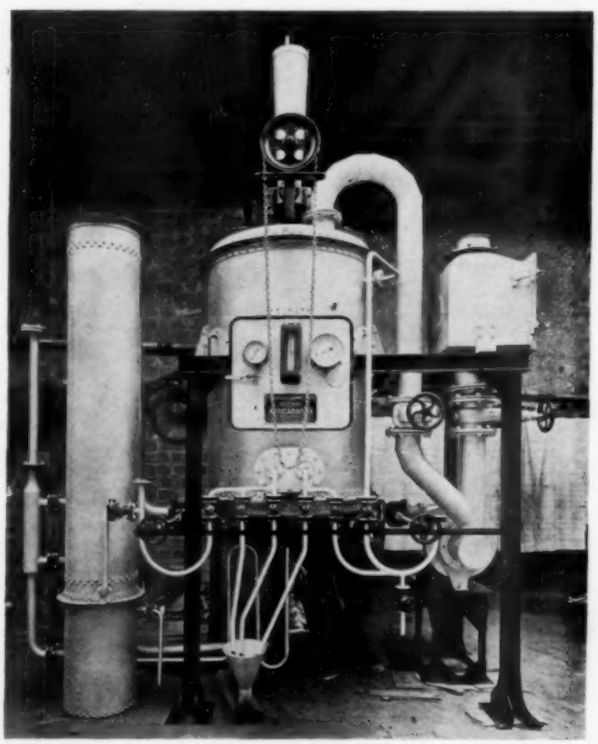


FIG. 10.—Small single-adsorber, self-contained installation. Shop erection.

tention whatever, and have been successfully doing so over substantial periods of time.

In most installations two adsorbers are used and perforce one is adsorbing while the second is being regenerated and cooled. When three adsorbers are used, one is adsorbing while the second is being regenerated and the third is being cooled. When four adsorbers are used, the operation is staggered so as to have two adsorbing—but reaching saturation at different times—one being regenerated and the fourth being cooled. Except in the extraction of gasoline from natural gas, more than four adsorbers are rarely used.

Summary

Examination of operating data accumulated over more than a decade of practical use definitely shows that the activated carbon recovery process, when properly designed and operated, can effect such large savings that it will be amortized within a period of from six months to two years. The amount of labor required is negligible and except in those exceptional cases where it is necessary to place the recovery plant down in the cellar, up on the roof or in a building away from the workrooms where the solvent is evaporated, it is possible to properly attend to it without additional help. The operation is so simple and foolproof that unskilled labor can be trained to properly run the installation.

These practical data also show that it is possible to recover for re-use from 97% to 99% of the solvent vapor in the solvent-laden air and to attain over-all yields of from 60% to 94% of the solvent evaporated. The record in the rubber industry indicates that an overall yield of 90% is generally to be expected. It also shows that with a properly designed and operated installation fire and health hazards are reduced to a minimum, that insurance rates are lower and that labor efficiency is greater.

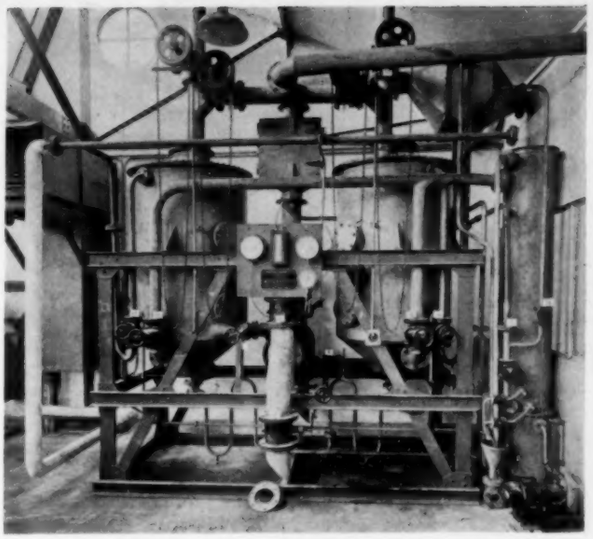


FIG. 11.—Small two-adsorber installation operating in a belting manufacturing plant.

The author is indebted to Acticarbone Corporation, New York City, for permission to reproduce some of the illustrations; others are from his files. The essential features of the equipment and process are protected by patents issued and pending. The adsorbent used in these installations is also patented as to product and process of manufacture.

Electrical Behavior of Rubber

THE monograph on rubber soon to be issued by the American Chemical Society will contain a chapter on the electrical behavior of rubber based on a paper prepared by A. T. McPherson of the National Bureau of Standards, according to the December, 1935, issue of the *Technical News Bulletin* published by the Bureau.

This paper deals at some length with the four properties—dielectric constant, power factor, conductivity (or resistivity), and dielectric strength—which are commonly regarded as important in connection with the use of rubber for electrical insulation. The less familiar properties—frictional or triboelectrification, piezoelectrification, and electrostriction—are also treated, and mention is made of the magnetic permeability.

The term "rubber" is broadly interpreted to include not only natural rubber and its vulcanized compounds, from soft rubber to ebonite, but also gutta percha, balata, artificial gums, and synthetic rubber, i.e., DuPont's DuPrene, and Thiokol.

In the case of rubber-sulfur compounds detailed consideration is given to the relation between the electrical properties and the percentage of sulfur, the temperature, the pressure, and the magnitude and frequency of the applied potential. In connection with rubber-insulating compounds, attention is paid to the effect of accelerators, antioxidants, fillers, and water as constituents of the rubber.

Various other matters are dealt with, such as the effect of mechanical deformation, electrical stress, and aging on the electrical behavior.

The Origin of "Rheology"

THE answer to the question, "What is Rheology"? is contained in an interesting comment in a recent issue of *The New Yorker* by St. Clair McKelway, who, unable to find a satisfactory definition of the word *rheology*, attended the joint meeting of the Society of Rheology and the New York Group, Rubber Division, A. C. S., held in New York in October. Mr. McKelway discovered that the word was coined by Professor E. C. Bingham, of the chemistry branch of Lafayette College some nine years ago to describe the "study of matter and what happens to matter under different conditions." The word was derived from the Greek "rheo," meaning "to flow" in the larger sense of deformation, the complete word indicating "the science, or study of, flow."

In 1926 Professor Bingham suggested a formal conference at Lafayette College to a group of men engaged in the study of matter ranging from liquids to solids and from vegetable products to minerals. The result of that conference was the formation of the Society of Rheology with Professor Bingham as the first president. The Society soon allied itself with the American Institute of Physics which affiliation permits it to publish rheological papers in the *Journal of Physics*.

Gaining momentum through the years the Society of Rheology now numbers approximately 300 members and has earned a separate niche in the field of chemistry and physics. Among its members are a number of rubber technologists who are attracted to the society on account of its studies on various aspects of the deformation or flow of rubber.

BECAUSE employers in the rubber industry, as well as in all other lines of manufactures, have a vital interest in new State and Federal social security legislation which they are compelled to support through the payment of payroll taxes, THE RUBBER AGE asked Mr. Herman Glasser, 29 Broadway, New York City, to define and explain these legislative movements. Mr. Glasser, a member of the New York Bar since being graduated from Yale Law School in 1908, is a practicing tax consultant. Early in his career he made a study of accountancy and actuarial science. In 1916, with the passage of the Federal Income Tax Law, he turned his attention to a study of all types of taxation and is a recognized authority in that field. About two years ago Mr. Glasser began the study of social security legislation and unemployment insurance, as well as the taxes imposed upon industry to provide these forms of relief. Every rubber manufacturer in the United States should carefully read Mr. Glasser's observations on the new social security legislation.

Timely Discussion of the New SOCIAL SECURITY LAWS

An Article Every Rubber Manufacturer Should Read!

By Herman Glasser
Tax Consultant

ON January 1st, 1936, the Social Security Law went into effect. It inaugurated a plan of social security more comprehensive in scope than that found in any other country and initiated a new form of taxation which will impose on industry a burden greater than the total of all other taxes to which business is subject. At no time since this reform was first proposed by President Roosevelt in June, 1934, has there been any real opposition to it as a security measure. The opposition which did exist was due to the belief that industry should not be subjected to this terrific burden at a time when every effort and resource should be directed toward recovery.

When, however, it became evident that the adoption of this measure was inevitable this opposition disappeared and in its place there developed a movement to influence Congress to enact a bill which would be basically sound and constructive.

It may be that a better law could have been written. If, however, social security was inevitable, a beginning had to be made. We had no previous experience to guide us. The plan adopted will be amended time and again as experience points out its insufficiencies and defects. Such corrective amendments as may become necessary should not be long deferred. It is most essential that employers should thoroughly familiarize themselves with the provisions of this scheme, with what is to be accomplished and the methods by which it is to be achieved. By so doing an informed public opinion will be built up to influence the adoption of such revisions and amendments as shall be necessary.

Rates of taxes may be reduced if found to be excessive for the purposes for which they are levied or they may be increased if found to be inadequate. Amount of benefits, duration of benefits, waiting periods and the many provisions of the old age benefit plan and unemployment insurance will be changed from time to time as the necessity therefore becomes evident.

Of one thing we may be certain. Social security benefits and payroll taxes with which to pay them are definitely here to stay and will continue with us so long as changing economic conditions bring unemployment and as long as industry continues to discard its aged workers without having made some provision for them. Until industry finds a way to stabilize employment and either provide gainful occupation for the aged or itself assumes the duty of taking care of them, the government, Federal and State, having now assumed the obligation, will continue to provide security for workers against the hazards of unemployment due to economic conditions or old age, and its attendant distress and suffering.

The Social Security Plan

Briefly, the scheme was inaugurated by the adoption by Congress in August of last year of the Social Security Act which imposses three different plans of taxation based on payrolls, two of which must be paid by the employer and the third by the employee. This act requires that the Federal government inaugurate old age benefits (which are in fact a form of annuity), and in addition, contribute to the various states having the necessary approved relief measures a portion of the amount expended in relief payments and cost of administration.

Because the Federal Act undertakes to make these contributions only to states which have adopted the necessary legislation, it necessarily follows that those states which have not as yet done so will soon enact

	NEW YORK STATE UNEMPLOYMENT INSURANCE TAX	FEDERAL UNEMPLOYMENT INSURANCE TAX	FEDERAL OLD AGE BENEFIT TAXES	
1. Who pays the tax?	The Employer.	The Employer.	The Employer.	The Worker.
2. When tax goes into effect?	January 1st, 1936.	January 1st, 1936.	January 1st, 1937.	January 1st, 1937.
3. Who must pay tax?	Employers of 4 or more workers. (This may be changed to 8 or more workers.)	Employers of 8 or more workers.	All Employers.	All workers except those exempt (see below).
4. Rate of tax?	1936 1% 1937 2% 1938 and thereafter 3%	1936 1% 1937 2% 1938 and thereafter 3%	Each pays at the following rates: 1937-1938-1939 1% 1940-1941-1942 1½% 1943-1944-1945 2% 1946-1947-1948 2½% 1949 and thereafter 3%	
5. Credit against tax?	None.	Taxes paid under New York State Unemployment Insurance Law but not in excess of 90% of this tax.	None.	None.
6. When payable?	At stated intervals during year as fixed by Industrial Commissioner.	Not later than January 31st following year for which taxes are payable.	At such times as fixed by Commissioner of Internal Revenue.	At time worker receives his wages by having tax deducted therefrom.
7. What portion of wages taxable?	All.	All.	Up to $3,000 in calendar year.	
8. The compensation of what workers are exempt from tax?	Non-manual Workers receiving more than $30 per week or more than $2500 per year. Farm Workers. Husband or Wife of Employer. Minor Child of Employer. Employees of Federal, State or Local Government. Employees of Charitable Organizations. Employees performing all their work outside the State of New York. Non-resident Employees performing the greater portion of their work outside the State of New York.	Agricultural Workers. Servants in the home. Officers and members of the crew of a vessel. Parent, Husband or Wife or Minor Child of Employer. Employees of Federal, State or Local Government. Employees of Charitable Organizations.	Agricultural Workers. Servants in the home. Casual Workers not in the course of employer's trade or business. Workers over 65 years of age. Officers and members of the crew of a vessel. Employees of Federal, State or Local Government. Employees of Charitable Organizations.	

The complexities of social security legislation are simplified in the above chart prepared by the author. Principal provisions of the taxes levied and benefits provided are given.

laws carrying the Federal Social Security Plan into effect. The Federal Act also provides for an offset to employers of 90% of one of the Federal taxes provided contributions have been made by the employer under his State Compulsory Unemployment Insurance Law.

To date, nine states* and the District of Columbia have adopted Compulsory Unemployment Insurance Laws and the remaining states will do so shortly, since otherwise employers will not be entitled to the offset allowed under the Federal Act.

Before going into a detailed discussion of the provisions of the various acts, a brief summary of the plan as a whole may be desirable. In doing so, it is assumed that all states have enacted the necessary legislation to complete the scheme. The plan provides the following forms of relief:

1. Old age assistance; 2. Old age benefits (to certain workers only); 3. Unemployment benefits; 4. Aid to dependent children; 5. Maternal and child welfare; 6. Services for crippled children; 7. Child welfare services; 8. Vocational rehabilitation; 9. Public health work; 10. Aid to the blind.

It provides for the following plans of taxation:

1. Tax on payroll to be paid by the employee to the Federal government, usually referred to as the Federal Old Age Benefit Tax on employes;

2. Tax on payroll to be paid by the employer to the Federal government, usually referred to as the Federal Old Age Benefit Tax on employers;

3. Another tax on payroll to be paid by the employer to the Federal Government, usually referred to as Unemployment Insurance Tax on employers;

4. Tax on payroll to be paid by the employer to the State, usually referred to as State Unemployment Insurance Tax on employers;

5. In some states a tax on wages to be paid by the employee to the State, usually referred to as State Unemployment Insurance Tax on employes.

Payments on account of the various forms of relief enumerated above, except old age benefits for certain workers and unemployment insurance, begin at once in those states where the necessary laws are in force or as soon as such laws are enacted. Old age benefits to covered workers begin on January 1st, 1942.

Unemployment Insurance Benefits begin January 1st, 1938, in those states where laws providing for their payment have been passed.

Of the taxes, plan "1" and "2" referred to above, accrue January 1st, 1937. Tax plan "3" and "4" accrue January 1st, 1936. Tax plan "5" where imposed, accrues January 1st, 1936, in certain states, and January 1st, 1937 in other states. Postponement of the payment of benefits was due to the desire to permit the accumulation of a sufficient reserve before any claims were payable.

It is the purpose of this article to discuss those benefits only with which industry is concerned. These are the Old Age Benefits to workers and Unemployment Insurance. This article will also summarize the provisions of the different types of taxes imposed.

The purpose of old age benefits is to provide the individual with security in his old age. It is expected that the security afforded will result in the retirement from employment of all such aged workers thereby affording opportunities for employment for the younger generation.

Unemployment insurance is a matter of the utmost importance to industry. As time passes there will be more and more discussion as to the necessity, desirability or propriety of providing unemployment compensation at the expense of the public for in this, as in every other form of taxation, the public ultimately pays.

* Alabama, California, Massachusetts, New Hampshire, New York, Oregon, Utah, Washington and Wisconsin.

There will be disagreement as to whether the taxes, referred to in the law as contributions, from which the benefits will be paid, shall be made by the employer or employee or State or Federal government or by two or more of them and if so which.

There will also be considerable discussion as to whether the benefit payments are sufficient or insufficient, whether the duration and conditions of payments are reasonable and fair. And many more.

This article cannot go into such controversial matters. But the reader can decide for himself what is right, what is reasonable and fair if he keeps in mind that Unemployment Insurance is not and should not be a relief measure. If it were, the experience of other countries with Unemployment Insurance and of the few private funds established in this country would indicate that the fund established by this legislation no matter how large it might become during prosperous years could not withstand the drain upon it during any extended period of depression. Especially, if politicians during such period of depression began to extend the provisions for payment of these benefits. Actually it is a plan to stabilize employment.

As President Roosevelt said in his message to Congress of January 17, 1935: "An unemployment compensation system should be constructed in such a way as to afford every practicable aid and incentive toward the larger purpose of employment stabilization." Employment stabilization may not be difficult to define but it surely is difficult to determine how it can be accomplished.

Perhaps the difficulty will be removed if we define employment stabilization as the attainment of regularity of employment. Stabilization of employment will have been accomplished when the worker knows that his employment is certain for a definite period during the year—whether that period be 52 weeks or 40 weeks or even less.

The Federal Act

The Federal Social Security Act provides for three different plans of taxation all based on and measured by wages paid. They differ in various respects.

Tax No. 1. Tax to be paid by worker on wages received by him commencing January 1st, 1937, at the following rates:

Years	*Rate*
1937, 1938, 1939	1%
1940, 1941, 1942	1½%
1943, 1944, 1945	2%
1946, 1947, 1948	2½%
1949 and thereafter	3%

This tax must be collected by the employer by deducting the amount at the time of the payment of wages and accounted for to the government. *All workers are required to pay this tax except agricultural workers, servants in the home, casual workers, employes over 65 years of age, officers and members of the crew of a vessel, employes of the Federal, State or Local government, and employes of charitable organizations.*

The tax is payable on the full amount of wages received except that after taxes have been paid by a worker in any calendar year on $3,000 of wages no tax shall be payable on any excess received during the balance of the year.

Tax No. 2. Tax on payroll to be paid by the employer commencing January 1st, 1937. The provisions with respect to this tax are identical with those applying to the tax described as Tax No. "1" except that it is payable by the employer and cannot be deducted from wages of the worker.

Tax No. 3. Tax on payroll to be paid by the employer beginning January 1st, 1936. The rates of this tax are as follows:—

Year	*Rate*
1936	1%
1937	2%
1938 and thereafter	3%

The employer is entitled to credit against this tax, all contributions made by him during the year under a State compulsory unemployment insurance act but not exceeding 90% of the amount of this tax. There are provisions whereby the employer gets the benefit of the full credit even though the contributions made to the State are less than 90%, if such lower contributions are allowed by the State because the employer has succeeded in stabilizing employment in his establishment or has agreed to provide a certain required minimum of employment.

This tax is payable by all employers who during the taxable year have had in their employ eight or more workers on each of twenty days during the year, each of said days being in a different calendar week.

This tax is based on the total payroll excluding agricultural workers, servants in the home, officers or members of the crew of a vessel, parent of the employer, children of the employer under 21 years of age, or husband or wife of the employer, employes of the Federal, State or local government, and employes of charitable organizations.

It will be noted that this tax differs in one very important respect from the tax described as Tax No. "2". There only the first $3,000 of wages is taxable. Under this provision the full amount of wages is taxable.

Proceeds of none of these taxes are to be set aside for any specific purpose as is the case under the State Unemployment Insurance Law which will be discussed later. They are all to be paid into the Treasury of the United States as Internal Revenue collections.

The law provides various benefits. The Federal government undertakes to contribute a portion of the amounts disbursed by the states for certain specified forms of relief, and in addition various sums towards the cost of administering these different types of relief.

The act creates old age benefits which is the only relief payable and administered by the Federal government. This benefit is in fact a form of annuity not differing greatly from that which can be purchased from a life insurance company.

Beginning January 1st, 1942, every wage earner who is then over 65 years of age and has retired from employment, and thereafter as a worker reaches that age, will be entitled to receive from the Federal government a monthly payment depending on the amount of wages received by him after January 1st, 1937, on which taxes were paid under Tax Plan "1" and "2" described above. This, therefore, excludes wages received in any year in excess of $3,000 and bars those employes whose wages were not taxable under those provisions.

In order to fix the amount of the monthly benefits, it is necessary to determine first the total wages received on which taxes were paid, and using that amount as a base, calculate the monthly benefit by applying the following percentages:

On the first $3,000	½%
On the next $42,000	1/12%
On the balance	1/24%

A worker having earned less than $2,000 in the aggregate during the five years preceding January 1st, 1942, will receive no benefits. The maximum payable is $85 a month and to be entitled to that maximum a worker must have received in wages after January 1st, 1937, $129,000 and since no more than $3,000 in any one year is to be included the worker must have received $3,000 for not less than 43 years. Therefore, only after 1980 will any worker be entitled to receive this maximum.

If the total wages to be used as a base for determining the monthly benefit is less than $2,000, the worker will receive no monthly benefit but instead a lump sum payment equal to 3½% of such total wages, and if he dies before the payment is made, it will be paid to his family.

The monthly benefits continue during the remainder of the life of the individual. In the event of death before the total of all monthly payments received equal or exceed 3½% of the total wages by which the benefits were measured, the deficiency will be paid as a death benefit to his family. If a worker dies after January 1st, 1937, but before January 1st, 1942, or thereafter, but before attaining the age of 65, there will be paid to his family in a lump sum 3½% of the total wages received by him on which taxes were paid.

The State Law

To ascertain the contributions to be made by an employer and the benefits to be paid to employes in a certain state, reference should be made to the Unemployment Insurance Law of that state. The laws adopted to date differ widely. Space will not permit a discussion of the provisions of all the laws so far adopted. The discussion here will be limited to the New York law with the caution, however, that the reader should study the law of his state to determine the provisions applicable to him.

New York adopted its Unemployment Insurance Law on April 25th, 1935. Under it every employer who in 1935 had in his employ four or more individuals within each of thirteen calendar weeks during the year, is subject to the act and must make the required contributions based on payrolls beginning January 1st, 1936. Thereafter, an employer becomes subject to this act as of January 1st of the year during which he employs four or more persons within each of thirteen weeks.

Every such employer shall make contributions to a fund created by the State from which payments will be made as benefits to unemployed. The rates of contributions are fixed at the following percentages of payrolls:

Year	*Rate*
1936	1%
1937	2%
1938 and thereafter	3%

There shall be excluded from payrolls for the purpose of fixing the tax all non-manual workers receiving wages at a rate in excess of $50.00 per week or more than $2500.00 per year, also wages paid to farm workers, husband or wife or minor child of the employer, charitable workers, employes of Federal, State or local government, employes performing all their work outside the state, and such non-resident employes who perform the greater part of their work outside the State if the contract of employment was entered into without the State.

An agreement by a worker to pay any sum towards the contribution payable on his wages shall be void as is also an agreement by an employee to waive his right to benefits. Benefits cannot be assigned or mortgaged nor can they be reached by creditors. From the fund, unemployed workers will receive weekly benefits of one-half of their full weekly wages but not less than $5.00 nor more than $15.00.

No benefits shall be payable before January 1st, 1938 unless the present law is amended so as to postpone contributions in which event benefits will be payable two years after contributions become payable. An employee shall be entitled to benefits only if

1. He is totally unemployed;
2. Has registered as such and reports for work;
3. Has been employed for 90 days during the year preceding the date when benfits are to commence or has had not less than 130 days of employment during the two years preceding the date when benefits are to begin.

The law provides for a waiting period of three weeks of total unemployment before benefits are payable, and in the event the worker becomes more than once unemployed during a calendar year the total waiting period during that year shall not exceed five weeks.

The waiting period shall be ten weeks if the unemployment is the result of misconduct or due to a strike, lock-out or industrial controversy.

Benefits payable are limited to sixteen weeks but shall not be more than one week of benefit for each fifteen days employment within the 52 weeks preceding the beginning of the payment of benefits.

If because of excessive unemployment, the fund is exhausted, no more benefits will be payable. The law expressly limits the payment of benefits to the fund.

Recognizing that it would be unfair to pay benefits to seasonal and part time workers similar to those paid to workers whose employment is regular throughout the year, the law authorizes the Industrial Commissioner after hearings held, to fix waiting periods and benefits to be paid, different from those in the law and which shall apply to such industries as have seasonal and part time employment.

The aggregate taxes to be paid under the Social Security Plan will be as follows:—

Year	*To be Paid by Employer*	*To be Paid by Employee*
1936	1 1/10%	—
1937	3 2/10%	1%
1938	4 3/10%	1%
1939	4 3/10%	1%
1940	4 8/10%	1½%
1941	8 8/10%	1½%
1942	4 8/10%	1½%
1943	5 3/10%	2%
1944	5 3/10%	2%
1945	5 3/10%	2%
1946	5 8/10%	2½%
1947	5 8/10%	2½%
1948	5 8/10%	2½%
1949	6 3/10%	3%

The above schedule does not include contributions to be made by employes in those states where provisions for such contributions exist.

Having surveyed the plan as a whole, it may be interesting to study its effect upon industry. The rubber industry is in no different position with respect to this legislation than any other.

Every manufacturer should understand that the cost of his product will be increased by approximately the amount of Payroll Taxes payable. Thus for example, in 1949 when the tax to be paid by the employer will be 6.3% the cost of his product will be increased by approximately that percentage. This takes into consideration the increased cost of the raw material. If the manufacturer desires to ascertain the increased cost to himself, he must increase his labor cost and the wages paid to other than manufacturing labor by the percentage of taxes payable during that year.

Since these taxes will be uniform throughout the entire industry, wherever located, no one manufacturer will have an advantage over any other and the cost of each will be increased by the same percentage. Thus each manufacturer will be able to increase his selling price to cover this tax and pass it on to the customer.

The manufacturer, therefore, is concerned merely with knowing what the tax will be and making sure that it is included in his selling price.

The benefits which the manufacturer will derive from the operation of this Social Security Plan are (1) the increase of purchasing power resulting from the payments to unemployed; and (2) increase of purchasing power by reason of the benefits paid to workers after they arrive at the age of 65 years and have retired from active employment.

One need not be a student of economics to understand that any plan which accumulates a reserve contributed by consumers and distributed to individuals who would otherwise be without income and thereby deprived of purchasing power, must of necessity prevent any sharp decline in business activity. The Social Security Plan, therefore, will have the effect of levelling the peaks of boom activity by increasing the cost of commodities and raise the levels of depression by prolonging and increasing the purchasing power of consumers. As an economic experiment, social security has much to recommend it.

This has been the experience in every country where social security has been in effect. The outstanding example is England where the operation of its unemployment insurance and old age benefits has resulted in alleviating the distress of its workers during its period of depression and brought about a recovery much sooner than in this country.

Industry has nothing to fear from social security. If permitted to function scientifically, it must be beneficial and if it is to function successfully, industry must be ever on the watch to see that the accumulated reserves are not utilized by politicians for their own benefit and in a manner disadvantageous to industry and for purposes other than those intended.

Stearic Acid in Pearl Form

UNDER the trade term of "Pearlstearic," a new stearic acid in the form of miniature pearls or pellets has been developed by Darling & Company, of Chicago, Illinois. The new type is free-flowing, easily applied to the rolls, melts into the mix and disperses quickly.

According to Darling, stearic acid in the new form was developed to overcome some of the disadvantages of the cake form, which was found to be wasteful and more difficult to melt, and the powdered form which usually clumps together into an unwieldy mass on the rolls causing uneven distribution.

Pearlstearic is said to overcome these difficulties as it is claimed to be handy to weigh out, melts and dissolves easily, is uniform and economical to use.

Plasoleum—New Revertex Product

A NEW type of adhesive and caulking material for the building trades, called Plasoleum, has recently been made available by the Revertex Corporation of America, of New York City. The base of the new product is Revertex, which is a 75% concentrated rubber latex, giving it the waterproofing qualities of rubber as well as its durability and resistance to temperature change. Plasoleum is mixed on the job in quantities sufficient for the required work so that waste is held to a minimum. It can be spread with a trowel in cold form.

Considerable use is already being made with Plasoleum which, combined with certain fillers, makes it an advantageous material as a filler for expansion joints in buildings and as a caulking material for window frames, etc. Other special uses for Plasoleum recommended by its manufacturer include its adaption as an adhesive for laying wood and wood block, linoleum, rubber, cork and tile on concrete or steel, and for laying linoleum, wainscoting, tile, rubber and glass on concrete, wood, brick and plaster walls. By adding from 200 to 300% filler, Plasoleum is said to make a good material for levelling floors and walls, the adhesive property of the product insuring permanent results.

Because of its rubber base Plasoleum is especially adaptable as the adhesive where flooring materials are subject to moisture. This also applies where facing tiles are set on walls in underground work. In cases where wall facings are subject to vibration, as in subways, power plants, etc., the elastic properties of this new compound tend to absorb the vibrations thus reducing maintenance costs. Plasoleum has been successfully used in Europe for many years.

ICI Monastral Fast Blue BS

A NEW blue pigment, said to possess characteristics and properties found in no other color, has been introduced by Imperial Chemical Industries, Ltd., of London, England. Good shades are produced under all conditions of vulcanization and also under cold cures with sulfur chloride. These shades may be varied from a deep, bright blue at full strength to a pale, greenish blue at lower concentrations. According to tests, the new pigment is approximately fourteen times as strong as Ultramarine and loses none of its brightness when diluted to pastel shades.

Completely insoluble in rubber and in hydrocarbon solvents, in water and steam, Monastral Fast Blue BS shows no indication of bleeding when used in open steam cures. Unaffected by acids and alkalis it lends itself to use in latex. It may also be used in connection with finished goods which are exposed to sunlight due to its light fastness. Its properties best call for its use in the manufacture of rubber flooring, bathing caps, hot water bottles, proofing, etc., but it has been found to give good results in special applications.

Unaffected by the ordinary blowing agents, such as ammonium or sodium bicarbonate, it produces good shades in sponge rubber, and, furthermore, does not bleed out from the sponge into soapy water. After prolonged periods of vulcanization it gives bright blue shades in hard rubber or ebonite. In an eraser mix the pigment gave a bright shade of blue and did not rub off on the paper.

15 YEARS OF SAFETY In the Rubber Industry

By Ernest W. Beck*

THE Rubber Section of the National Safety Council was organized in 1919 by those interested in safety in the larger rubber companies. Mr. Sidney Schott, then in charge of safety at the Detroit plant of the United States Rubber Company, was the first chairman. At that time the rubber industry was regarded as a most hazardous one, but according to the recent accident reports of the National Safety Council it is now listed among the least dangerous. Back in 1926 the records show that the average frequency rate for the rubber industry was practically equal to the average frequency rate for all industries. Chart I, showing the accident frequency rates for "All Industry and the Rubber Industry" shows the most excellent improvement made by the rubber industry in its reduction of lost-time accidents per million hours worked.

In 1931 the rubber industry stood 10th best in frequency and 9th best in severity among 28 of the leading industries, while in 1934 it took 5th place on the basis of frequency and 4th on the basis of severity in a list of 30 industries. Considering both frequency and severity, the rubber industry's experience for 1934 is excelled by but one other—the tobacco industry—and that industry had less than half the number of units reporting and but 15 per cent of the man hours worked by the rubber industry.

Promotion of Standard Practices

The Executive Committee of the Rubber Section, N.S.C., has done much constructive work in the past fifteen years by promoting the written standard practice on the proper methods and formulas for reporting accidents. As a result of this standard practice, the rubber industry can show accident figures for comparative purposes as far back as 1921 (see Chart I). The following quotation is taken from E. W. Beck's report as Secretary of the Rubber Section and Chairman of the Standardization and Statistics Committee, (report dated September 1922):

> "We want to be able to say that the rubber industry is not a hazardous one, as many have been inclined to think, and we cannot make this statement unless we are able to show statistics covering the experience of a greater number of manufacturers. I am confident we will be able to say without hesitation, that rubber goods manufacturing is one of the safest, if not the safest, of all industries."

* This paper was presented by Mr. Beck, Supervisor of Safety, U. S. Rubber Products, Inc., at the 24th Annual Safety Congress of the National Safety Council at Louisville, Kentucky, on October 15, 1935.

Tracing the Steady Growth of Safety in Rubber Factories Since the Inauguration of the Rubber Section, National Safety Council

Our annual statistical reports show us that the predominating accidents existing in the rubber industry are the machinery accidents. The recent report for the year 1934 shows that 30 per cent of the lost-time accidents occurring in the rubber industry were due to machinery. We must remember that the rubber industry contains many possible sources of accidents, probably more than the average industry. We have to deal with highly powered equipment, chemicals, hazardous solvents, electric currents. Some of this machinery, such as mills, cannot be guarded at the point of operation. It was with this thought in mind that the Executive Committee of the Rubber Section, N.S.C., in October, 1923, devoted considerable time and discussion to drawing up a standard safety code covering safety factors on mills and calenders.

This important code took considerable time to develop. The Code Committee was composed not only of safety engineers, but also representatives of rubber machinery manufacturers, state inspectors, insurance representatives, etc. Mr. John Condon, Supervising Engineer, U. S. Rubber Company, was Chairman of the Code Committee and Mr. Ernest W. Beck, of the same company, was Secretary. The code was approved by all the necessary parties, including the American Standards Association, and was finally printed in March, 1927, and distributed as a recommended American practice.

The Rubber Section of the National Safety Council was also responsible for the most excellent research on the subject of benzol. The final report was drawn up under the joint sponsorship of the Rubber Section and the Chemical Section, N.S.C., and received national recognition. At our several meetings we have received valuable information from outstanding authorities on such subjects as compounds used in the rubber industry; static electricity; vulcanizing; fire and dust hazards in the rubber industry; digesters; hazards of reclaiming; power windups; occupational affections of the skin; etc.

There is one factor that should not be lost sight of, namely, in developing our safety program a most excellent spirit of cooperation was created among the

safety engineers in the rubber industry. These industries may be competitors in marketing their finished products but they most certainly were not competitors in the safety field for their motto seemed to be—"There are no secrets in safety" and it was surprising to note the most congenial relationship that was developed among the members of this section. During these years they have felt perfectly free to write to one another regarding safety problems, exchanging accident rate figures and also accident cost figures. I believe it is this cooperative spirit that has done more

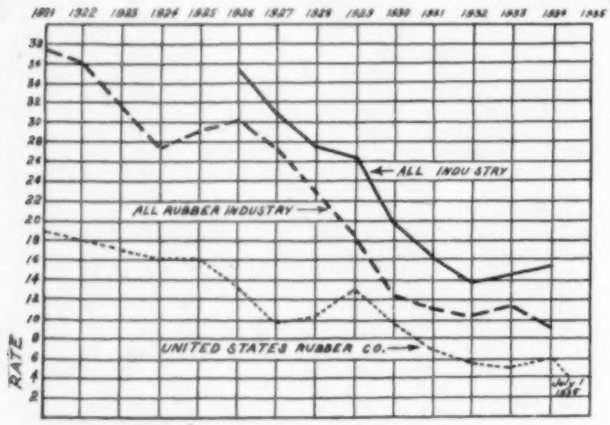


CHART I.—ACCIDENT FREQUENCY RATES.

(Frequency rate is the number of accidents per 1,000,000 man hours worked.)

than anything else to improve the accident prevention work within the industry.

During the last fifteen years our industry has seen many changes take place through the installation of modern machinery such as plasticators, Banbury mixers and tubing machines, displacing to a great extent the more hazardous types of washing equipment and open mills and calenders. The installation of conveyor systems, unit vulcanizers and hoisting equipment has eliminated the dangerous man-power handling of heavy equipment and material.

The fact that many large rubber companies carry their own compensation insurance has tended to accentuate attention upon preventive measures.

Our accident records show that the frequency rates of the larger companies, those having 500 or more employes, have been substantially better than those of the smaller companies. The reduction shown in the number of accidents in the rubber industry during the past fifteen years was obtained in spite of the fact that compensation laws, in practically every state where rubber workers are employed, have been changed, increasing the amount of compensation, reducing the waiting period and including occupational disease laws. All of which have a tendency to increase the number of lost-time accidents and their cost. During the period of depression a large number of questionable claims were made and the workmen's compensation courts of the country have tended towards liberality in making awards.

The large majority of rubber workers are employed in the states of New York, New Jersey, Ohio, Massachusetts, Connecticut, Pennsylvania, California, Michigan and Wisconsin, where the labor laws are more severe than in other states. These states have been the leaders for years in advancing and increasing labor laws as they apply to both industry and the worker. However, as previously stated, the accident records for the rubber industry, during all of these years, have shown steady improvement.

Chart II shows that the rubber industry, by giving more time and study to accident prevention has reaped an excellent reward for its efforts. Enormous sums of money have been expended in installing modern equipment throughout the industry, thereby reducing the accident hazards to a minimum.

To determine the change in the accident experience of an industry from one year to another, as shown on Chart II, the same companies should be included each year. Otherwise what appears to be a drop in rates may result entirely or partially from the presence in the second year only of companies with lower-than-average rates; or vice versa. In determining changes in rates over a series of years, therefore, identical companies are used in each two-year comparison and index numbers are calculated to show the changes. The following figures will be found interesting:

ESTIMATED INJURY RATES, RUBBER INDUSTRY, 1926-1934
(Based on 1934 rates of 48 reporting plants)

Year	*Frequency Rate*	*Severity Rate*
1926	30.13	1.66
1927	27.18	1.02
1928	22.63	1.16
1929	18.23	1.32
1930	12.28	1.01
1931	11.06	1.07
1932	10.31	.80
1933	11.45	1.14
1934	9.25	.80

ESTIMATED INJURY RATES, ALL INDUSTRIES, 1926-1934
(Based on 1934 rates of 3,866 reporting establishments)

Year	*Frequency Rate*	*Severity Rate*
1926	35.39	2.68
1927	30.63	2.25
1928	27.30	2.24
1929	26.22	2.26
1930	19.66	2.12
1931	16.11	1.84
1932	13.61	1.73
1933	14.58	1.62
1934	15.29	1.70

Another item of interest is the fact that during the past three years, in response to a demand from the rubber industry, the National Safety Council has conducted a safety contest among the Rubber Section members. This contest, based on the frequency rates, has stimulated a further interest in accident prevention and through the splendid trophies and honorable mention certificates has carried home to the man on the job recognition in a national way that has given him cause to be proud of the company and the industry for which he works.

Occupational Disease Cases Abated

In October, 1933, Mr. John D. Nolan, General President of the Shoe Workers' Protective Union, made a public statement in connection with the code of fair competition for the rubber muanfacturing industry at a public hearing in Washington, D. C., that the occupational disease disability is the chief hazard in our industry. This is a mis-statement of facts, as the accident cost in large rubber companies over a period of ten years shows that much less than 1 per cent of the total expense was paid for occupational disease

including chemical hazards. We seldom hear of a case of lead poisoning, benzol poisoning or aniline poisoning in the rubber industry. In spite of the recent changes in compensation laws incorporating occupational disease disability, the rubber industry has not considered, nor has it found, occupational disease hazards a problem of any size.

In talking on a subject like this it is only to be expected that the speaker should touch on the experience of some large rubber company. Naturally, he would refer to the company best known to him and for this reason I will touch on what has been done in the United States Rubber Company to illustrate, in part, what is being done in my company to contribute to the most excellent accident experience that has taken place in the rubber industry, during the past fifteen years.

U. S. Rubber's Safety Methods

The accompanying Chart I shows the accident frequency rates for the U.S. Rubber Company during the last several years. You will note that the frequency rates shown for the U. S. Rubber Company each year are much lower than the frequency rates for the rubber industry as a whole and for all industries. The company which I represent has about 20 factories and about 30,000 employes. Mr. Francis B. Davis, Jr., president of the United States Rubber Products, Inc., is a staunch advocate of organized safety development. He believes that a plant which is efficient in safety is also efficient in production methods. He takes the attitude that accidents will not happen in a well-managed plant. I believe that a survey of our industries would demonstrate that our most efficient factories are those where the greatest attention is paid to accident prevention.

Eleven years ago our company, realizing the advantage of competition between plants, organized and conducted a safety contest, giving prizes of various kinds to the factory showing the greatest percentage of improvement in its accident experience over the average of its previous three years. In this way each factory competed not only with the other factories within the company but also with their own previous safety records.

We have many different kinds of safety committees at our plants such as safety advisory committees, employees' safety committees, departmental safety committees and the health, safety and sanitation committee of the factory council. In addition to these committees we have organized suggestion systems and all employes are encouraged to hand in suggestions for the good of the organization.

The reduction of accidents has been the result of the united effort of the entire organization. Conditions regarding health, safety, sanitation and fire protection are under constant surveillance of each local organization and periodic inspections are made by the Supervisor of Safety. The prominent and liberal use of the National Safety Council's service material is employed throughout all plants, and safety lectures and demonstrations are given before safety committees, factory councils and foremen's meetings to develop gradually an ever-increasing safety perception on the part of all employes.

Accurate statistics covering the number of accidents, compensation paid, medical and legal expense are recorded for each factory as well as for the company as a whole so that the entire program can be most intelligently directed at all times into a trend toward further accomplishments.

The proof of good safety work can be shown by proper statistics. Always have your statistics ready to show. The big boss is interested in the end figure. He is used to dealing with figures and can readily visualize the trend. By all means have accurate statistics, keep them brief and when you get them use them.

You might be interested in a few figures showing the accomplishment within our company. Recently, all of our plants operated for 34 consecutive months, or a total of 114,000,000 man hours, without an industrial fatality. At one of our factories, employing 1,600, the entire personnel worked 2,286,000 man hours during an entire year without a lost-time accident. Another of our factories, with approximately 750 employes, operated for 16 months, working 1,853,275 man hours, without a lost-time accident. Another plant with 400 employes has operated 503 days to date, working approximately 1,055,242 man hours, without a lost-time accident, and this plant has a large foundry department. Our largest tire cord mill with 1,450 employes has operated 335 days to date, working 2,424,603 man hours, without a lost-time accident. Another plant with an average of 50 employes operated for over four years without a lost-time accident, working approximately 440,000 man hours.

The question may be asked:—"How do you account for the increase in the figures on Chart I showing the frequency rates for the United States Rubber Company during 1929 and 1934?"

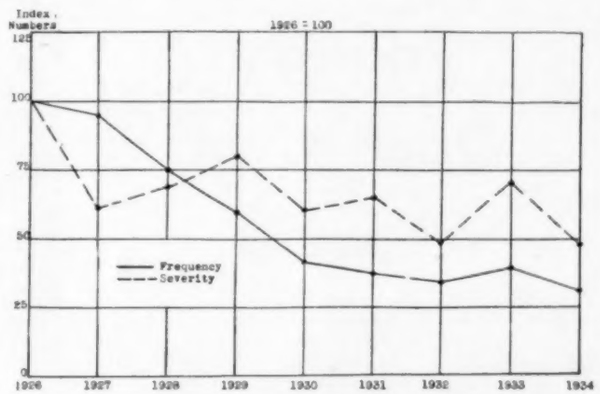


CHART II.—INDEX NUMBERS OF ACCIDENTAL INJURY RATES IN THE RUBBER INDUSTRY.

The frequency of disabling injuries has decreased 69% since 1926 in the rubber industry; the severity rate has decreased by 52% since that year.

The reason for the 1929 increase in frequency was due to a change in management of the United States Rubber Company which brought about the closing of several factories. Hundreds of tons of heavy machinery, equipment and supplies were moved from one plant to another. A large number of employes were transferred to new plants and, as might be expected, a large number of accident claims were made which we never would have received if all of our factories had remained open.

In 1934 we added to our list of factories four plants which were never before included in our tabulations. These factories were not in our self-insured group as were all the other plants, and the Central Safety Department had not functioned in them as it

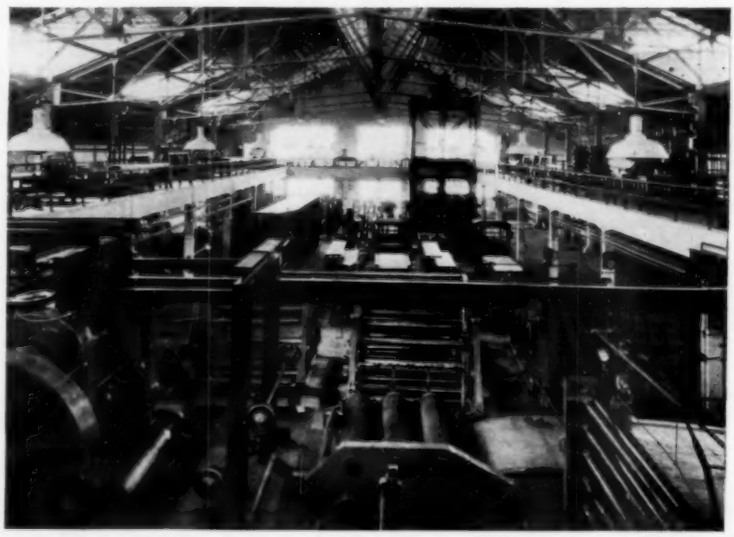
had in the others. As a matter of fact, these four new plants that were shown on our 1934 report had an average of 182 per cent (almost 3 to 1) more accidents than did the other plants shown in the tabulation. If we had omitted them from this tabulation our frequency rate would have shown a decrease instead of an increase.

The success in safety work that the rubber industry has had during the past fifteen years did not just happen nor was it the work of any one man. It came about through everlastingly plugging away every day and the whole-hearted support of the entire organization.

According to the best records we can find, we can safely say today that the rubber industry is the safest large industry on record and the Rubber Section is the safest section in the National Safety Council. Our Section represents about 85 per cent of the rubber industry. It is the responsibility of everyone in the rubber industry to do everything possible to maintain this position. We have not reached perfection—we have a long way to go. In 1934 our records show that the industry had 7 deaths or permanent disability cases, 53 permanent partial cases, 1,178 temporary disability cases, or a total of 1,238 disabling injuries. Our 1934 frequency rate is 19 per cent lower than in 1933 and the decrease in severity is 25 per cent. The rubber industry, as stated in the annual report of the National Safety Council, is one of the few industries to achieve reductions during 1934. For all industries each rate rose about 5 per cent.

The price of safety is eternal vigilance, so let us all continue to have the added joy of knowing that by our efforts there are fewer sad hearts in the world. Years ago we were told that the position that our industry now occupies in the safety field was practically impossible of attainment. Don't think we have finished the race, we are only in first place among the larger industries and second place among all industries. It is a race for life and we would like to stay in first place and show by example to our fellow workers what can be done.

New Rubber Factory Opened in Brazil



ONE of the most modern tire plants has been completed for the Companhia Brasileira de Artefactos de Borracha, in Rio de Janeiro, Brazil, with a production capacity of 300 tires and 300 tubes daily. Brazilian rubber will be exclusively used. Plans for the factory, which will be operated under the technical supervision of the Seiberling Rubber Company, were developed in Akron, Ohio, by F. A. Seiberling, president, K. B. Kilborn, chief engineer, and Dr. A. F. Dias, production and sales manager of the Brazilian company. Building of the new plant was supervised by A. A. Leedy, Seiberling Canadian plant superintendent. L. C. Peterson is serving as chief chemist and superintendent; W. W. Maddux has charge of production. The reproduced photographs depict interior views of the Brazilian factory.

RUBBER GROUPS Hold December Meetings

New York, Chicago and Los Angeles Meetings Feature Christmas Parties, Elections and Technical Papers

THREE groups of the Rubber Division, A.C.S.—the New York, Chicago and Los Angeles Groups—combined business with pleasure at their December meetings, all of which were, by coincidence, held on Friday evening, December 20. The Christmas spirit was evident at all three get-togethers with valuable prizes and table favors being distributed, these being donated, for the most part, through the generosity of various rubber supply organizations. Interesting papers were part of the technical session of each meeting, several of them enhanced by motion pictures or lantern slides. The New York and Los Angeles Groups elected new officers for 1936.

New York Rubber Group

The annual Christmas party of the New York Group was held in the club rooms of the Building Trades Employers Association, at 2 Park Avenue, in New York City, on Friday evening, December 20. A Christmas tree, highly decorated, served as "atmosphere" for the occasion, while a community punch bowl gave an added touch. Approximately 280 members and guests participated in the festivities and enjoyed the typical turkey dinner served.

Immediately after the dinner, and prior to the introduction of the evening's entertainment, a brief business session was held during which the Nominating Committee, headed by C. A. Bartle (Du Pont), submitted its report. All of the nominees were unanimously elected. The slate of 1936 officers follows:

R. D. Gartrell (U. S. Rubber Products), chairman; J. Miscall (Flintkote), vice-chairman; Peter P. Pinto (THE RUBBER AGE), secretary-treasurer; W. H. King (Pocono), sergeant-at-arms. The Executive Committee consists of the following members: W. F. Russell (Vanderbilt), J. W. Ayers (C. K. Williams), A. R. Lewis (Rubber Service Laboratories), Paul Lupke, Jr. (Essex Rubber); J. H. Ingmanson (Bell Telephone Laboratories), R. R. Lewis (Vulcan Proofing), L. D. Ackerman (Seamless Rubber), and the retiring chairman, Bruce R. Silver (N. J. Zinc). Two new posts, i. e., vice-chairman and sergeant-at-arms, were created this year, the purpose of the move being to fashion the officers' slate after that of the Rubber Division, A.C.S.

Following the elections, Mr. Silver introduced the first speaker, Dr. A. R. Kemp, of the Bell Telephone Laboratories, who briefly discussed the rapid improvement in the laying of deep-sea cable and outlined the

Members of the New York Rubber Group ready for the turkey dinner served at the annual Christmas party on December 20.

qualities essential to the cable to withstand the many difficulties facing it at the bottom of the sea. Dr. Kemp then introduced his associate, F. S. Malm, who delivered a mutually prepared paper on "Business in Deep Waters" which elaborated in a technical sense many of the points made by the first speaker. At the conclusion of his address, sound motion pictures were shown depicting the actual laying of the latest deep-sea cable from Newfoundland to the Azores, the latter islands acting as a terminal for cables from many parts of the world. The sound film traced all of the steps necessary in laying deep-sea cables including activities during a storm at sea.

After the presentation of this film, another sound picture was shown through the courtesy of the Bell Telephone Laboratories. Entitled "Fish from Hell," this picture showed the thrills and dangers of deep-sea fishing off the coasts of California and Mexico and featured a fight-to-the-finish between a gigantic whale and a swordfish, natural born enemies of the deep. The final picture of the evening was a series of motion pictures taken of the activities of the New York Group during its 1935 picnic at Preakness, New Jersey, last June, by several amateur photographers, and was accentuated throughout by the laughter of the assembly as they recognized first one, then another of the faces flashed on the screen.

The final act of the evening was the distribution of prizes to holders of lucky numbers, prizes ranging from desk pen sets to a complete electric mixing outfit. The prizes, all in addition to table favors including an electric clock, pipe, propel pencil and playing cards, were donated by the following companies:

American Cyanamid & Chemical Corp., Anaconda Zinc Oxides, Richard Best Pencil Co., Binney & Smith Co., Callaway Mills, Inc., Carter Bell Mfg. Co., Godfrey L. Cabot, Inc., Curran & Barry, E. I. du Pont de Nemours & Co., Inc., Endicott-Johnson Co., Flintkote Co., General Atlas Carbon Co., Givaudan-Delawanna, Inc., Imperial Color Works, *India Rubber World*, H. Muehlstein & Co., Naugatuck Chemical Co., New Jersey Zinc Co., Quaker City Rubber Co., Pequanoc Rubber Co., Philadelphia Rubber Works, Pocono Co., Rare Metal Products Co., THE RUBBER AGE, Rubber Service Laboratories Co., St. Joseph Lead Co., Schavoir Rubber Co., Henry L. Scott Co., A. Schrader's Sons, Southwark Mfg. Co., Stamford Rubber Supply Co., C. J. Tagliabue Mfg. Co., Titanium Pigment Co., United Carbon Co., R. T. Vanderbilt Co., Vansul, Inc., Vulcan Proofing Co., Wishnick-Tumpeer, Inc., Woburn Degreasing Corp.

The committee in charge of the program and prizes for the Christmas party consisted of C. R. Haynes (Binney & Smith), as chairman, and R. E. Casey (Naugatuck), J. Miscall (Flintkote), and P. P. Pinto (THE RUBBER AGE).

Chicago Rubber Group

A special Christmas meeting was held by the Chicago Rubber Group at the Hotel Sherman, in Chicago, on Friday evening, December 20, with an elaborate turkey dinner served in the hotel's College Inn. During dinner the members and guests were entertained by George Olson's orchestra, with Miss Ethel Shutta as soloist. A sumptuous floor show was also presented featuring an "ice skating" revue which is stated to be Chicago's outstanding entertainment hit of the year.

After the dinner and show, members and guests proceeded to the Crystal Room of the hotel where the technical portion of the program, arranged by F. George Arnold, chief chemist of the Rapid Roller Company, as chairman, was presented. The first speaker was Walter P. Voth, of the Akron Standard Mold Company, who described with motion pictures a new automatic press said to be of revolutionary design. Following the presentation of pictures a short round table session was held on the new machine.

The other speaker of the evening was Dr. Owen R. O'Neil, an eminent traveler, who delivered an address on "A Trip to Swasiland." A noted authority on Swasiland (South Africa), the speaker gave an interesting talk on several human incidents that occurred during the many years he lived in that country, and described living conditions, sports, and other activities.

The final event of the meeting was the distribution of prizes to seventy-five holders of lucky numbers in keeping with the holiday spirit. These prizes, varied in nature, were contributed by the following companies:

L. Albert & Son, American Zinc Oxides, American Zinc Sales Co., Barrett Co., Binney & Smith Co., Godfrey L. Cabot, Inc., E. W. Colledge, G.S.A., Inc., Commerce Petroleum Co., E. I. du Pont de Nemours & Co., Inc., General Atlas Carbon Co., C. P. Hall Co., Herron & Meyer, H. Muehlstein & Co., Naugatuck Chemical Co., New Jersey Zinc Co., Proctor & Johnson, Inc., Rit Products Co., Rubber Service Laboratories Co., A. Schulman, Inc., United Carbon Co., U. S. Rubber Reclaiming Co., R. T. Vanderbilt Co., Wilson Sporting Goods Co., Wishnick-Tumpeer, Inc., and the Xylos Rubber Company.

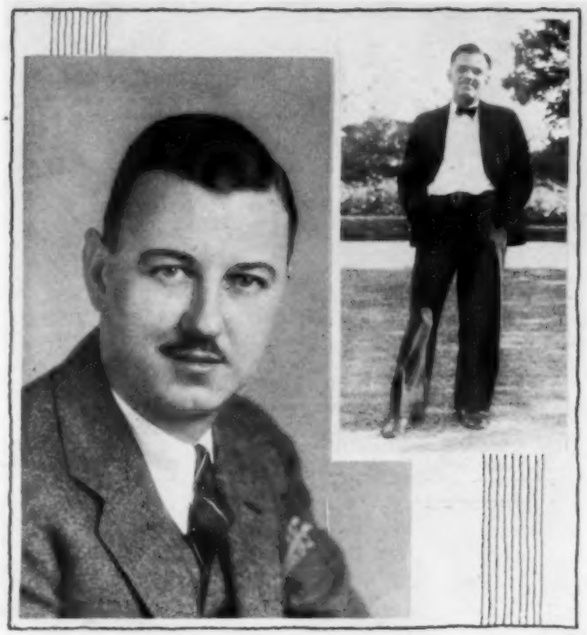
B. W. Lewis, of Wishnick-Tumpeer, Inc., 365 East Illinois Street, Chicago, is secretary of the Chicago group.

Los Angeles Rubber Group

The December supper meeting of the Los Angeles Rubber Group, held on Friday evening, December 20, at the Furniture Mart Cafe, in Los Angeles, featured the election of new officers and the admittance of 20 new members. G. G. Balazs, chief chemist and Manager, Compound Service Division, of the Goodyear Tire & Rubber Company of California, was elected chairman, succeeding W. R. Hucks, research chemist of the B. F. Goodrich Company's Los Angeles division. C. E. Stentz, of the E. M. Smith Company, was named secretary-treasurer, succeeding R. E. Hutchinson, Firestone research chemist. E. L. Royal, of H. M. Royal, Inc., Vernon, California, was elected vice-chairman for the ensuing year.

A total of 48 members attended the supper meeting, 20 of whom were admitted to membership during the meeting. The large number of new members secured was due to a membership campaign fostered by a special committee appointed at the November meeting. Appointment of new standing committees was left to the incoming officers who are scheduled to report at the January meeting. J. Edward Tufft, of Pasadena, Los Angeles representative of THE RUBBER AGE, has also been admitted to membership in the Los Angeles Rubber Group.

Following the elections, Charles Lamb, of the West American Rubber Company, Los Angeles, presented the main address of the evening. The speaker recently spent three months in England, a portion of which was devoted to historical research. His address, which took one hour and twenty minutes, covered many phases of the rubber industry, both historical and cur-



Upper right: G. G. Balazs, chairman of the Los Angeles Group. Left: Carl E. Stentz, secretary-treasurer of the same group.

rent. He presented many interesting angles for consideration by the rubber industry at large.

The second feature of the program was the presentation of moving pictures of Yosemite National Park and the winter sports enjoyed there. This was presented by Mrs. Ruth Eckert, representing the Los Angeles District Passenger Agency for the park.

During the meeting, Henry C. Pearson, formerly publisher and editor of the *India Rubber World*, and now a resident of Pasadena, was made a life member of the Los Angeles Rubber Group by a unanimous vote. The life membership was voted partly because of Mr. Pearson's donation of his personal rubber library, one of the most extensive in existence, to the Los Angeles Public Library recently.

It has been the custom of this group since its organization to make meeting dates flexible in order that advantage might be taken of the visits of rubber chemists and specialists who, when visiting the coast, are often asked to address the group. It was voted, however, at the December meeting, to outline a tentative series of programs for next Winter.

Prizes were awarded to the three members who were first in putting in their reservations for the December meeting. These prizes, donated by R. D. Abbott, representative of the C. P. Hall Company, for the Los Angeles territory, were given as a means of stimulating attendance in the future.

Prolonging Foundation Bolt Life

ONE of the larger companies operating in the East Texas oil field has found that encasing foundation bolts in short sections of rubber hose before casting them in concrete has reduced the replacement of bolts by more than 60% and has cut machine breakage from that source by 75%.

This use of hose serves a two-fold purpose. By supporting that portion of the bolt immediately below the machine in a yielding material instead of its being held rigidly in concrete, the metal is able to accommodate itself to expansion and contraction in the machine; and the fact that several inches, at least, of the bolt are free to yield vertically without damage within the range of its elastic limit enables the fastening to sustain loads which would result in overstressing or breaking the short stub of steel which normally projects above the unyielding concrete matrix.

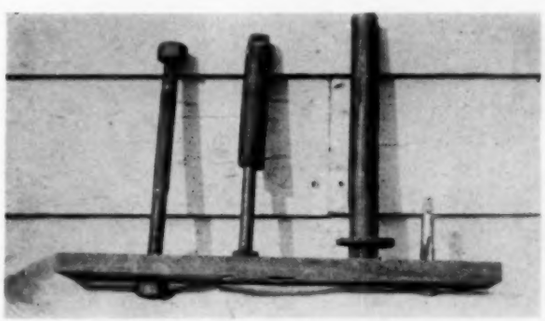
For its needs this company uses two types of hose "shock absorbers." The short section, shown on the center bolt in the accompanying photograph, is ample for smaller machines, compressors and electric motors which carry no unbalanced reciprocating parts, and which run steadily. If the length of hose used be eight times the bolt diameter, that margin has been found to give ample protection against tensional stresses, and to cushion the bolt so that horizontal vibration will be damped out without forming nodes to foster crystallization.

The bolt which is entirely covered with hose, as at the right of the illustration, is used with pumps, pumping powers and other machines having intermittent or sharply variable loads, so as to permit the entire bolt length to absorb the stresses. This type of rubber sleeve also encourages the use of high-tensile alloy steels for severe service needs, a stud being used instead of a bolt and the lower end of stud and bottom nut—already in place on the stud—being dipped in liquid paraffin before being placed in the form to be concreted.

With this type of mounting, when there no longer exists a need for that particular machine at the spot where it was set up, the studs can be unscrewed from the buried nut and pulled from the rubber sheath for use again, with new hose coverings, in the next similar foundation to be cast.

Where the bolt and hose are expected to remain permanently, as when the short type of sleeve or shield is used, it has been found that wetting both bolt and hose with water makes easy the placing of the shield; while if it is planned to salvage the stud from the full length shield, a thin coating of light oil is best, as this is absorbed by the rubber without its causing deterioration.

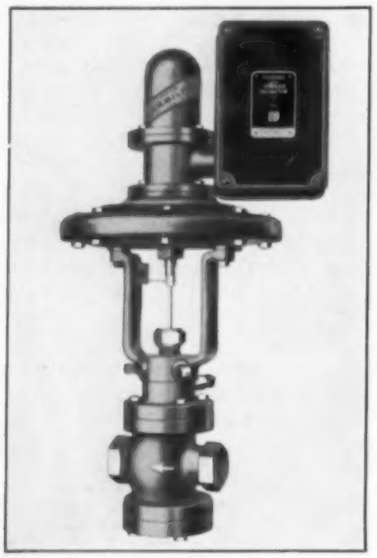
This method of cushioning foundation bolts offers a not inconsiderable market for rubber—in the case of this company, *steam*—hose, an average of 22.25 feet of hose being required for each well equipped for individual pumping.



New Equipment

Foxboro Vernier Valvactor

DEVELOPED as an accessory for air-operated control valves to eliminate valve sticking and to assure hair-line valve positioning, the Vernier Valvactor has been developed by the Foxboro Company,



Foxboro, Mass. The device enables throttling type air-operated control instruments to make small gradual adjustments of the control valve position regardless of friction or hysteresis. An ample supply of air is said to be always available due to the use of air relay in the Vernier Valvactor which is mounted in a cast aluminum case and can be attached directly to the spring housing of all sizes of Stabilflo valves. For other types of valves it may be mounted on the side of the motor supports.

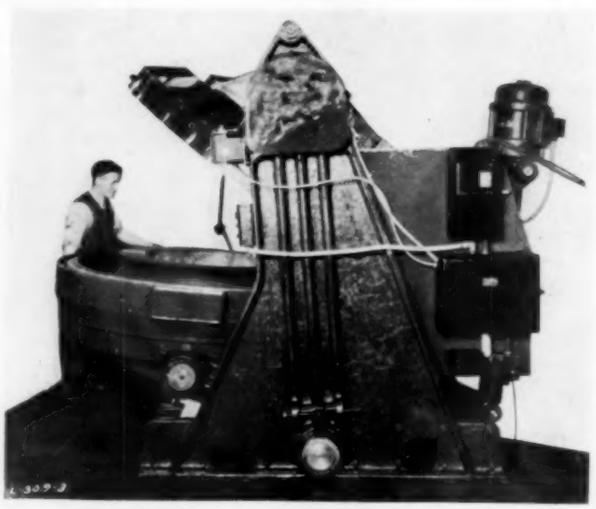
CG Gaulin Homogenizer

CLAIMED to be the only two-stage homogenizer on the market, the Manton-Gaulin Manufacturing Co., Inc., Everett, Mass., is featuring the Type CG Gaulin. This homogenizer is suitable for use in latex compounding. It has no moving parts, a ball bearing type motor and runs noiselessly due to the gears in the

head running into an oil bath. The two-stage valve device makes it possible to obtain both high and low viscosities and it is said to give an assurance of uniform quality to latex mixes. A pressure indicator is standard equipment on all CG Gaulin models, this instrument giving steady gauge operation without the use of a check valve. A recorder may be furnished with, or in place of, the indicator if preferred. A special laboratory homogenizer, built in two sizes, i.e., 12 and 25 gallons an hour, is also available.

Giant Tube Vulcanizing Unit

REPORTED to be the largest of its kind ever produced, the National Rubber Machinery Company, Akron, Ohio, has developed an electrically operated giant tube vulcanizing unit. It is modeled along the same general lines of the company's bicycle and passenger tire curing units. The giant vulcanizer, which accommodates cavity dimensions up to a 16-inch cross-section and a 66-inch outside diameter, is noiseless in operation, does not vibrate, and can be made to operate automatically as well as by hand. Included among its features are single adjustment for pressure; rapid and efficient operation by means of an enclosed oil tight simple screw drive; and simplicity of tube removal, one operator easily inserting and removing the cured tubes from the floor level when the unit is in an open position. An insulating chamber outside the mold is said to greatly reduce condensation. The vulcanizer can be opened and closed in eight seconds for each movement. Known as the National Model 60, this unit comes equipped with an 11.25 x 42 inch tube mold.



Book Reviews

Latex in Industry. By Dr. Royce J. Noble. Published by THE RUBBER AGE, 250 West 57th Street, New York City. 384 pp. $7.00 per copy.

(Reviewed by Dr. Harry L. Fisher)

During the early development of uses of a new tool or of a new material, the action is so rapid and the changes so great that even if one of the men chiefly involved wishes to write a comprehensive book or treatise on the subject, it would be impossible from the very nature of the case for him to do so. Thus it has been with rubber latex. Latex was known for many, many years before the intensive development of its use in industry began about fifteen years ago. It has been stated that latex was not in use earlier because no one had found methods of preserving it. However, alkalies were used as preservatives by Fourcroy in 1791, and the use of ammonia was patented in England and in the United States in 1853. The real helps for the development of uses of latex were found in the principles of the new science of colloidal chemistry, and the discovery of ultra-accelerators and antioxidants, together with the determination of a very few men to make use of it in industry.

The use of latex has grown, as shown by exports, from approximately 500 tons of dry rubber (368,000 gallons) in 1922 to 19,566 tons in 1934. Compared with the total amount of crude rubber produced in 1934, 1,003,734 tons, this figure is small but very significant.

"Latex in Industry" is just what its name implies. As Dr. E. A. Hauser, in his introduction to the book, states, "A comprehensive write-up of latex technology—in other words, a review of all applications of latex known at present in the industry—has so far not existed. The constantly increasing interest for the direct application of latex, the difficulty in obtaining comprehensive and condensed information as to its processing, etc., has become a serious handicap to all interested in this comparatively new field of industrial activity. Dr. Noble's book fills this gap in our technical literature on latex." The author shows definite practical knowledge of his subject and gives details which are seldom if ever found in a compilation of methods and data.

The book is divided into two parts. Part I consists of 178 pages and deals with the following subjects: sources, preservation and shipment of latex, properties of latex, concentration of latex, artificial latices (this chapter includes a description of DuPrene latex), vulcanized latex, compounding—general, materials, stabilizing, thickening, wetting agents and equipment, coagulation of latex compositions, vulcanization, and examination of latex. Part II consists of 167 pages and treats of the following subjects: technical application of latex, impregnation, spreading, dipping processes, molding (casting), electrodeposition, paper and latex, artificial leather, rubber thread, porous rubber, friction elements, adhesives, latex treated rugs and plush, and miscellaneous uses.

At the end of each chapter there is a bibliography of patents and articles on the subjects discussed. In some cases these bibliographies are very extensive,—for example, the one on properties of latex covers thirteen pages, and on compounding, ten pages. The names of the authors mentioned in the bibliographies are included in the author index.

The subject index is apparently very complete. The reviewer, however, was unable to find in it the subject of bromine finish described on page 224. How fallible we all are!

Many illustrations from photographs and diagrams help to make the book attractive as well as useful. In the chapter on compounding, both the chemical and trade names of accelerators, antioxidants, etc., are given. Recipes are included with the description of most of the processes mentioned. It is of interest to note that the scorchy ultra-accelerators are the ones used almost exclusively in latex work. The theoretical discussions are brief. There, no doubt, will be a division of opinion as to whether they are too brief. "The theoretical of to-day is the practical of to-morrow," and the reviewer thinks that in a subsequent edition the theoretical discussions could advantageously be enlarged, since he feels certain that many of the men using latex in industry would appreciate this. The historical sections are very interesting. The discussions of the disadvantages as well as the advantages of using latex in some processes show a commendable fairness of mind.

The reviewer noted very few typographical errors. In the bibliographies it would be of much assistance if the titles, especially of articles, could be included. Also, in these bibliographies, it would be well to add the initials where the surname of two authors is the same. In the discussion of the chemical composition of latex, page 42, the words quebrachitol and methylinosite occur, but there is no indication that they both mean the same substance. In general, the author writes in a conversational style which is conducive to easy reading, but on this account he often lapses into the use of some awkward colloquial expressions. The words "due to" occur frequently, and the word "quite" is found several times in the same paragraph (page 241).

It is remarkable to what extent latex is now being used in industry. Surely this book, as Dr. Hauser states, "will be a most valuable source of information . . . and it should be an eye-opener to all those who still are afraid of joining in."

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Petroleum Shortage and Its Alleviation. By L. C. Snider and B. T. Brooks. Published by The Chemical Foundation, 654 Madison Avenue, New York City. 38 pp.

The authors of this booklet, sixth in "The Deserted Village" series sponsored by The Chemical Foundation, are convinced "there is abundant evidence that we may expect a shortage of petroleum sufficient to necessitate a marked increase in our imports and an increase in the petroleum price structure within five to eight years." They discuss present producing areas, proration and potentials, increasing percentage of dry holes, effect of price on petroleum production, and petroleum substitutes. They indicate that industries using petroleum products may expect to pay higher prices within the next few years and state that at these higher price levels "petroleum substitutes will begin to compete with natural petroleum" although these substitutes are expected to alleviate the stringency of a petroleum shortage. In conclusion, Messrs. Snider and Brooks see the continuation of present conditions in production and refining of petroleum "until the indicated shortage materializes."

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A.S.T.M. Standards on Textile Materials. Prepared by Committee D-13. Published by the American Society for Testing Materials, 260 S. Broad Street, Philadelphia, Penna. 246 pp. $1.50.

All of the 37 standard specifications and tests which have been developed by Committee D-13 are contained in this compilation of A.S.T.M. standards on textile materials. In addition to these standards and tests there are given a proposed potassium dichromate oxidation method for the determination of total iron in asbestos textiles, several proposed methods of tests for fastness and slippage, a yarn number conversion table, and a psychrometric table for relative humidity. A large number of textile products are covered in the compilation including electrical tape. Abstracts of papers presented at D-13 meetings during the past year are also included.

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Some Aspects of Propaganda in the Rubber Industry. By James Fairbairn. (A Reprint). Issued by the Rubber Growers' Association, Inc., 19, Fenchurch Street, London, E. C. 3, England.

A reprint of an address given by Mr. Fairbairn on November 25, 1935, before the London Section of the I.R.I., this paper discusses the various methods open to use by members of the rubber industry to publicize their products and thus create wider markets. He discusses several methods including advertising, distribution of literature, participation in exhibitions, conferences and lectures, and experimental work connected with possible new uses. Methods followed by the Rubber Growers' Association are outlined briefly.

Editorial Comment

Increasing Consumption

EARLY in 1935 there were predictions galore that world-wide rubber consumption in that year would pass the one million ton mark. From statistics revealed to date there is every possibility of that goal being attained, especially if other countries have kept company with American consumption. Latest figures reveal that consumption of crude rubber in the United States for the month of November, 1935, was 23.1% above consumption in November of 1934.

Since it takes some three months to gather consumption figures from the leading foreign countries it is not yet actually known whether the one million ton mark has been reached. Another indication that it has may be found in the tremendous increase in production of rubber manufactures in Japan. Not only has Japan increased its exports considerably, but native consumption has also been expanding rapidly. For the most part such increased buying of native rubber products in Japan does not represent a decrease in imports from other countries, but rather a widening of the buying market.

It should be interesting to learn in the next few months whether those early predictions were based on optimism or shrewd consumption calculations.

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Social Security

ELSEWHERE in this issue we carry an article by a prominent tax consultant which explains briefly but completely how the rubber manufacturer, and other manufacturers as well, is affected by the social security legislation, which provides for old-age benefits and unemployment insurance. One of the factors we can expect from such legislation is an abatement of the Administration's clamor about "profit systems." This seems logical in view of the fact that the higher the profits the higher the payments received from manufacturers by the government for application in social security.

The bill passed by the last session of Congress provides for a fund upon which social security of the future shall rest, such fund to be fed by monies received through taxes on payrolls. According to the terms of the bill in its present condition, which undoubtedly will be changed, altered and amended in the future, security taxes will eventually reach a point where they must yield a sum almost, if not more than, the present total receipts of the government from all sources, including income taxes. The impossibility of such a situation has already been commented upon by Secretary of Treasury Morgenthau.

Whatever the future of social security may be the fact remains that rubber manufacturers in nine states which have passed unemployment insurance acts are obliged to pay a tax of 1% on the total amount of wages paid to employes during 1936, this payment being due on or before January 31, 1937. Thereafter they must pay, providing they employ eight employes or more, 2% on total salaries paid in 1937, and 3% in 1938 and thereafter. This payroll tax will be applied to unemployment insurance. Taxes for Federal Old-Age Benefits do not start until 1937, this latter tax being paid by both employer and employee.

We hold no brief for the wisdom of the taxes. We do, however, emphatically point out that because the Government undertakes to alleviate the cost of each state adopting an unemployment insurance act along lines it lays down in the matter of relief and administration, it is safe to say that before many months, practically all states will have adopted such legislation. Aware of such a strong possibility, rubber manufacturers in every state should make some preparation for absorbing the coming taxation.

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Goodyear Decision

WITH the filing of final briefs by both plaintiff and respondent the end of the long drawn out legal battle between the Federal Trade Commission and the Goodyear Tire & Rubber Company over the latter's tire contract with Sears, Roebuck & Company, is at last in sight. Irrespective of the decision handed down by the Commission the *actual* end of the controversy will not be here since it is almost positive that one or the other of the two interested parties will carry the decision up to the highest courts for final adjudication.

With the exception of the famous Packer's decision of 1920 and the consent decree entered into between the Government and the Radio Corporation of America, Westinghouse and General Electric, few cases have aroused so much interest, involved so much testimony, and have been extended so long. The taking of testimony covered hearings in almost every major American municipality. Testifiers ranged from side-street tire dealers to the executives of the "big four." No single point of attack or defense seems to have been omitted.

That this controversial case is bound to have a definite reverberation in future contracts between tire manufacturers and large wholesale and retail outlets, seems assured. Not only will it be evident in the tire industry, but the decision will apply to general relations between manufacturers and the larger types of retailers. One of the results of the case, irrespective of the decision, will probably be an attempt to amend the Clayton Act, the anti-trust provisions of which Goodyear is alleged to have violated by "unfair trade practices," so that points covered in this suit will be more specific and the rules more stringent. In fact the FTC, in its 1935 annual report, has already recommended such a move.

Because of all of these factors the decision to be rendered by the Federal Trade Commission in the next month or two is eagerly awaited by industry-at-large. The fate of so-termed "plus cost contracts" may rest with it.

CURRENT • NEWS
of the Rubber Industry

JANUARY, 1936

Trade Commission's Counsel in Final Briefs Asks "Cease and Desist" Order for Goodyear

Briefs Charge 25% to 50% Price Discrimination in Goodyear Tires Sold to Sears, Roebuck & Company in Alleged Violation of Clayton Anti-Trust Laws

CHARGING that the Goodyear-Sears-Roebuck tire contract is "discriminatory" and in open violation of the Clayton Anti-Trust laws, counsel for the Federal Trade Commission filed their final written brief with the Commission at Washington, D. C., on December 16, and recommended that Goodyear be ordered to "cease and desist." In filing the brief, the plaintiff's last before final oral argument in the FTC versus Goodyear suit, Commission Attorney E. F. Haycraft stated there is ample testimony in the record of the hearings, which took almost two years, to prove violation of the anti-trust laws. The brief was signed by Attorneys Haycraft, Kelley and Debirney. It traced the history of alleged price discrimination by Goodyear through the sale of tires to Sears-Roebuck, and contained the following statements:

"Respondent has been given every opportunity to justify the wide discrimination between the prices at which it sells tires to Sears on the one hand and to independent dealers on the other hand.

"The trial examiner found in his report upon the facts that the discrimination could not be justified under the provisos of the statute.

"There is overwhelming and conclusive evidence in the record tending to show that the defects of said discrimination has been and now is to suppress competition between Sears and independent retail dealers, and between respondent and competing manufacturers and wholesale distributors, and also to create a monopoly in the respondent and Sears in the distribution of tires to the public, and respondent as a wholesale distributor of tires."

In past briefs Goodyear has admitted to price discrimination in its sales of tires to Sears-Roebuck, but has steadfastly insisted that such discrimination was legal in view of the volume of business concerned. Goodyear's attorneys have maintained that the alleged discrimination was far less than that claimed by the Commission's counsel.

Commission Attorney Haycraft, at the time of filing the new brief, claimed that Goodyear sold tires from 25% to 50% less to the mail order houses than to its independent dealers "carefully concealing from the trade generally, and particularly from its own independent dealer customers, the low prices" concerned.

In addition to such discrimination, alleged the attorney, Goodyear further discriminated between purchasers of its tires by "secretly" paying a bonus to Sears-Roebuck in October, 1931, in the form of cash and Goodyear stock amounting to $1,250,000 in value. Both the price discrimination and the "secret" bonus are charged in the brief.

Goodyear attorneys are believed to have filed the company's final briefs with the Federal Trade Commission although none of the contents have as yet been made public. These Goodyear briefs were supposed to have been in the Commission's hands by the first of the current year.

After the Goodyear final briefs are submitted, attorneys for the Commission will be given an opportunity to submit brief written rebuttal to them, after which a date for final oral argument will be set, probably late this month or early in February.

Favor Rosenblatt Patents

According to Surgical Dressings, Inc., Jamaica Plain, Boston, Mass., the Canadian Patent Office will shortly hand down a favorable adjudication of the Samuel Rosenblatt patents, owned by the company, covering the cohesive type surgical bandage known as "Sterilastic." A suit is currently pending in Chicago against an alleged infringer, Surgical Dressing advising that it intends to prosecute all infringers to the full extent of the law.

SCHEDULE A.C.S. MEETING

The Rubber Division, A.C.S., will hold its next meeting on Wednesday afternoon and Thursday morning, April 15 and 16, in Kansas City, Missouri. It has not yet been decided whether the Rubber Division will hold its meetings at the Hotel President or in the Auditorium where the rest of the A.C.S. meetings will be held, but C. W. Christensen, secretary-treasurer of the Rubber Division, urges members to make reservations at the Hotel President, one of Kansas City's newest hotels. Headquarters and registration of the A.C.S. will be at the Hotel Muehlebach.

RUBBER CONSUMPTION IS 1% ABOVE OCTOBER

Consumption of crude rubber by manufacturers in the United States for the month of November is estimated to be 42,778 long tons, which compares with 42,436 long tons for October, 1935. November consumption shows an increase of approximately 1% above October this year and 23.1% above November a year ago, according to statistics released by The Rubber Manufacturers' Association. Consumption for November, 1934, was reported to be 34,748 (revised) tons.

Imports of crude rubber for November were reported to be 28,826 long tons, a decrease of 16.1% below the October figure of 34,356 long tons, and 20.4% under 36,233 long tons imported in November, 1934.

Total domestic stocks of crude rubber on hand November 30th are estimated at 303,162 long tons, which compares with October 31st stocks of 317,850 long tons and 362,826 long tons on hand November 30, 1934.

Crude rubber afloat to U. S. ports as of November 30th is estimated to be 46,588 long tons as compared with 49,913 long tons afloat on October 31st of this year and 38,625 long tons afloat on November 30th a year ago.

November reclaimed rubber consumption is estimated at 9,084 long tons; production, 11,482 long tons; and stocks on hand, November 30, 1935, 21,478 tons.

FOUR-POINT PROGRAM ADOPTED BY GOODYEAR

A four-point program is being adopted by the Goodyear Tire & Rubber Company, Akron, for 1936, according to a bulletin issued by President P. W. Litchfield on January 3. These points include: positive stability of price to all classes of customers; all operations must be made at a profit, with prices not to be sacrificed for production volume; an unlimited guarantee of tires against all road hazards will be eliminated at the earliest possible date; and the number of company-owned super-service stations will not be increased.

The "New Year's Resolutions", as they have been termed, are a blow at tire manufacturers' costly practice of issuing a so-termed special warranty with each tire sold, the unlimited guarantee made by some manufacturers often leading to sales complications. It is also said to be one of the frequent causes of price wars.

Leading tire manufacturers have been attempting to stabilize prices in recent months, with discounts limited to 10% of the consumer list and 22½% to purchasers of tires whose car equipment consists of five or more vehicles, cars or trucks. Fleet operators are said to be falling into line with the maximum 22½% discount but are demanding better service and adjustments.

SIX "AD" AGENCIES USED BY GOODRICH

The B. F. Goodrich Company, Akron, will use six advertising agencies during 1936 to handle the advertising of its thousands of rubber products, according to the December 30, 1935, issue of *Advertising Age*. This multiple-agency system, according to Philip C. Handerson, Goodrich advertising director, is highly effective because each line of merchandise has its own distinct market and must have an advertising and sales policy equally individual. The agencies, and the lines handled by each, follow:

Ruthrauff & Ryan, New York—Goodrich passenger tires, batteries and accessory lines; Griswold-Eshleman, Cleveland—Goodrich mechanical goods, truck and industrial tires, and Miller mechanical goods, toys and balls; McCann-Erickson, New York—Goodrich and Hood rubber footwear; Amos Parrish & Co., New York—Goodrich and Miller bathing wear and drug sundries; Fuller & Smith & Ross, Cleveland—Hood, Miller, Diamond and Brunswick tires. The sixth agency is called in for special work at intervals only.

A separate advertising department is maintained within the Goodrich organization for each major line of merchandise, each department working with its respective agency, all under Mr. Handerson's general direction. Goodrich advertising embraces almost all known forms, from direct mail to the daily newspapers.

Pressure Alters Rubber

Professor P. W. Bridgman, of the Physics Laboratories, Harvard University, Cambridge, Mass., is conducting a series of experiments with staggeringly high pressures, comparable to those found inside the earth, on a variety of products and materials. By squeezing materials at pressures as high as 700,000 pounds to the square inch and twisting them at the same time dangerous explosions have occurred in such substances as celluloid and lead and magnesium dioxide. Professor Bridgman found that under high pressure, plus twisting, rubber was derubberized into a translucent horn-like material. A large commercial research laboratory is engaged in determining whether rubber in this form has any commercial possibilities. Professor Bridgman is continuing his experiments.

Rebuff Goodyear on Hours

Several months ago workers of the Goodyear Tire & Rubber Company, in Akron, Ohio, both members of the Goodyear Industrial Assembly and the United Rubberworkers Association, objected to the management's announcement to increase working hours per day and increase production possibilities. By a narrow margin the Goodyear Senate voided a movement to request Federal intervention so that a factory-wide employees' vote on the issue might be held. The United Rubberworkers, however, made a complaint to Secretary of Labor Perkins who, on January 7, decreed that Goodyear is seeking unjustified lengthening of hours and reduction in wages. The decree was based on the findings of a fact-finding board appointed by Secretary Perkins which also maintained that Goodyear had violated its agreement of April 13, 1935, to negotiate with its employes. It found that Goodyear had no justification to increase the six hour day to an eight hour day, especially in view of the fact that the company had voluntarily adopted the short hour day.

Bondall Purchases Factory

The recently organized Bondall Company has purchased the two-story building formerly occupied by the United States Rubber Company on Bittner Street, in North St. Louis, Missouri. The building has 70,000 square feet of floor space. After alterations are completed and new machinery installed, the Bondall Company will start manufacturing brake linings, clutch facings, molded rubber articles and articles of various nature from asbestos. Charles A. Niemeyer is president of the company.

AKRON TIRE OUTPUT NEAR ALL-TIME RECORD

According to the statement of one of Akron's leading rubber statisticians, the present output of tire units in and about Akron compares favorably with all-time peak records of the industry, with production during December said to be 25% greater than in the same month of the preceding year. The production boom is attributed to the unusual demand for original tire equipment and to the building up of inventories in preparation for spring dating orders.

Statements from Goodyear, Goodrich and Firestone officials attribute the high production levels to longer working hours per man per week, and the shifting of men and women already employed. The output of these factories, as well as those of India Rubber, Seiberling, and others, is believed to be far beyond the general average increase for the entire tire industry which is said to be 10% higher than it was a year ago. The holding of the automobile show two months earlier than usual is also a factor in the improved showing.

Tire leaders predict that production schedules will be maintained at their present rate well into 1936 with a strong possibility of a higher standard retail price list to be posted on or about March 1. The major companies are already engaged in raising tire prices "to the list," or, in other words, in eliminating special concessions and discounts. Inventories are said to be at a "good level" in comparison to increased sales.

STEADY DECLINE NOTED IN ALL RUBBER STOCKS

World stocks of rubber have been declining steadily for many months with appreciable decreases noted in several countries, according to a compilation made by the Commodity Exchange, Inc. Stocks in the hands of manufacturers and dealers in the United States decreased by 14,688 tons during November, 1935, bringing the decline from a year ago and the end of May, 1934, to 59,792 tons and 47,773 tons, respectively.

The decrease of world stocks in the last twelve months has amounted to 50,473 tons, despite increases in the United Kingdom almost from month to month, due for the most part to decreases in the United States. Malayan stocks in the hands of estate dealers, Colony dealers, stocks on estates, etc., have declined 30,177 since the beginning of restriction. On the whole, excluding stocks afloat to the United States, the month of November saw a decrease of 24,068 tons. A comparative table of world stocks showing the status as of November, 1935, follows:

	Stock at End of—		
	Nov., 1935	Oct., 1935	Nov., 1934
United States.....	303,162	317,850	362,954
United Kingdom...	166,843	171,149	127,762
Malayan	66,794	71,868	96,556
Total U. S., U. K. and Malayan	536,799	560,867	587,272
Afloat to U. S.....	46,588	49,913	38,625

TIRE LEADERS PREDICT IMPROVEMENTS IN 1936

A more cheerful sales year is in prospect for 1936 from the tone of comments made by leaders of the tire industry within recent weeks. Increased sales and better earnings are seen by James D. Tew, Goodrich president, who also sees an end to the disastrous price wars which wreaked havoc with 1935 profits.

"The year that has just closed," Mr. Tew said, "should show increased sales and earnings in the rubber industry. Had it not been for the serious price wars on tires during the summer months, sales as well as earnings would be considerably higher. Fortunately, these price wars are now largely eliminated, and with continued stability in the price of tires, coupled with improvement in automobile production, as well as general business, we anticipate increased sales and better earnings in 1936."

Paul W. Litchfield, president, Goodyear Tire & Rubber Company, calling attention to the fact that the past year saw a "substantial upswing in American business and the beginning through court decisions of a trend back to traditional balances in government", sees 1936 offering "essential elements necessary for additional and substantial business recovery."

"There is a definite need for greater production along almost all lines," remarks the Goodyear head, "Also there is an accumulation of reserves at hand for the purchase of this increased production. Under more normal condition these obvious elements would justify a high degree of assurance in forecasting increasingly good business. Two factors of uncertainty are also presented, however. One is the coming election with its attendant political campaign of bitterness and exaggeration. Another factor is the situation in Europe, with its ominous mutterings of wars. If we keep out of any foreign wars there will be more people with more money in the market."

William O'Neil, president of the General Tire & Rubber Company, stresses the importance of tire safety this year over the element of speed stressed in previous years. "More motorists are refusing to be satisfied with mediocre tires," says Mr. O'Neil, "just as they are dissatisfied with other mediocre merchandise. More are insisting on getting their money's worth for the dollars they spend.

"Safety, not speed, will be the objective most popularly sought in motoring in 1936. The motoring public, throughout America, has become genuinely alarmed over the tremendous increase of fatal or serious motor accidents in the past few years and is seeking for every means of making motoring less hazardous.

"Motorists are looking to the tires on their cars, which must really stop the car in an emergency, after the brakes have stopped the wheels. Tire mileage is taken for granted on present-day tires and today's drivers are much more concerned about whether their car will stop at once, in an emergency, and stop in its own traffic path, than they are in whether their tires will last 35,000 or 45,000 miles. Most good modern-day tires give plenty of mileage."

Price stability is visualized for 1936 by A. A. Garthwaite, vice-president and treasurer of the Lee Rubber & Tire Corporation, as compared with the chaotic price conditions in vogue during the past year. This stabilization will be due in part to the lowering of inventories of tires made from low-cost rubber, according to Mr. Garthwaite, who adds:

"In recent years some manufacturers have had the advantage of inventories of low-priced crude rubber accumulated in the years 1932 and 1933, when spot sold at 3.36 cents and 5.96 cents a pound respectively. Crude rubber in the last two years has been selling above 12 cents a pound, indicating the exhaustion of low-cost, crude inventories."

Stoller With Imperial

H. S. Stoller, 31 North Summit Street, Akron, Ohio, has been named sales agent for the line of carbon blacks manufactured by the Imperial Oil & Gas Products Company, Pittsburgh, Penna. Mr. Stoller, who has been associated with the industry for many years, will cover the rubber trade in the State of Ohio.

GENERAL ADVERTISING CITED BY TRADE BOARD

Advertising of the recently introduced General Dual 10 tire by the General Tire & Rubber Company, of Akron, has been termed "unfair" in a complaint issued on December 30 by the Federal Trade Commission which charges that General advertised the new tire in newspapers and over the radio as being "blowout-proof" when, according to the complaint, "this was not true."

The Commission set January 31, 1936, as the time when General Tire must "show cause why the Commission should not issue against it to cease and desist from the representations alleged." No comment has been made by General officials in answer to the Commission's charge that use of the term "blowout-proof" has had a tendency to deceive the tire-purchasing public and to promote the purchase of these tires in preference to products of similar types and quality offered by other manufacturers, dealers and distributors.

Tenth Year for Olin

The R. R. Olin Laboratories, of Akron, Ohio, have entered the tenth year of operating a consulting service and maintaining experimental laboratory facilities for the rubber and allied industries.

Wishnick-Tumpeer Booth at Chemical Exposition

Attractively arranged, the booth depicted above was used by Wishnick-Tumpeer, Inc., at the Fifteenth Exposition of Chemical Industries, held the week of December 2nd, in the Grand Central Palace, New York City. A wide range of Witco products used by the rubber, paint and printing industries, as well as other consuming industries, were featured in an illuminated, recessed cabinet at the far end of the booth. An asphalt display, showing the various uses of this product, also came in for its share of attention. Several booth attendants explained and described the manifold Witco products to all inquirers and interested parties.

Financial News

LEE RUBBER INCOME ALMOST HALF OF 1934

Despite an increase in total sales of 14% over the preceding fiscal period, the Lee Rubber & Tire Corporation, of Conshohocken, Pennsylvania, reports a net income of $184,586 in its twentieth annual report for the fiscal year ended October 31, 1935, which compares with a net income of $326,869 reported for the previous period ended October 31, 1934. The current profit is equal to 72 cents per share on the outstanding stock as compared with $1.28 per share on 254,465 shares in the previous period.

Operating profit, before depreciation and excise taxes, was $723,800, with the net income before depreciation and income tax shown as $395,687. $190,509 was deducted as a provision for depreciation of plant and equipment, while a provision of $20,951 is made for Federal income tax, subject to review by the Treasury Department. A total of $127,232 was paid in dividends during the year based on sums aggregating 50 cents per share.

Total current assets, including $761,227 cash in banks and on hand, are listed at $4,508,427 against total current liabilities of $555,821. The consolidated balance sheet lists total assets of $8,718,126.

According to a statement accompanying the report, signed by President John J. Watson, Lee Rubber has no bank indebtedness and no mortgages on either the Lee plant in Conshohocken or the Republic Rubber plant in Youngstown, Ohio, the latter a subsidiary. Referring to the payment of more than $550,000, which was equal in amount to about one-quarter of the entire wages paid to 1,543 employes, in taxes, including the heavy excise and processing taxes, Mr. Watson states that "if we can obtain relief from excessive taxation and the withdrawal of unnecessary regulations by the Government, the corporation should make a better showing." Of the "extraordinary" taxes, $58,000 has been deposited in escrow awaiting the decision of the Supreme Court.

FIRESTONE DIRECTORS TRIPLE DIVIDEND RATE

At the annual meeting of the Firestone Tire & Rubber Company, held in Akron on December 16, the board of directors declared a quarterly dividend of 30 cents a share on the common stock, which is three times the amount heretofore paid, sending it up from 40 cents to $1.20 per year. A dividend of $1.50 on the 6% cumulative preferred stock was also voted, payable March 1 to holders of record on February 15.

Addressing 2,000 stockholders at the meeting, Harvey S. Firestone, Sr., chairman of the board, revealed that Firestone had paid $288,000,000 in wages during the past ten years, while plants and equipment were depreciated more than $33,000,000 in the last six years. He criticized the restriction scheme stating that restricting products of the soil such as cotton and rubber is "fundamentally unsound." He also predicted a "day of reckoning" for the government because of its continued borrowing.

Explaining the increased dividend rates, Mr. Firestone declared "we are now in a position to take full advantage of the prosperity that seems to lie before us in 1936." He also predicted that the Firestone factories would operate at 85% of capacity or better during the coming year. All officers and directors were re-elected at the meeting.

NATIONAL-ERIE CORP. ISSUES NEW STATEMENT

The completely reorganized National-Erie Corporation, of Erie, Pennsylvania, manufacturer of rubber machinery as well as other types of industrial machinery, has issued its first balance sheet as at the starting of business on August 1, 1935, and also a profit and loss statement for the month ending August 31, 1935, its first month of operation, the latter showing a profit of $7,438 for the month, which was approximately 13% of the net sales.

According to the balance sheet, the reorganized company started to do business with total current assets of $144,384, of which $23,129 was cash in bank and on hand, the balance being notes and accounts receivable. Stock investments total $875, while $3,032 is credited to "other receivables." Fixed assets, including land, buildings, equipment, etc., are shown at $733,344, with $992 credited to deferred charges, making total assets of $882,628. Total current liabilities are set at $40,970, with total capital stock listed at $698,570. W. J. Johnson is president of the reorganized National-Erie Corporation.

Goodyear Lists New Offering

Goodyear Tire & Rubber Company of Canada has listed 120,000 shares of 5% cumulative redeemable preferred shares of a par value of $50 each on the Montreal (Canada) Stock Exchange. The new listing replaces the old preferred stock redeemable last June.

Loss for National Machinery

For the eight months ended August 31, 1935, the National Rubber Machinery Company, Akron, Ohio, reports a net loss of $24,285 after depreciation, taxes, interest, and other charges were deducted.

Akron Reclaiming Reports Loss

The Akron Rubber Reclaiming Company, of Akron, Ohio, which has been inactive for a number of years, reports a net loss of $69,473 for the year ended October 31, 1935. The factory is being prepared for early resumption of activity for the reclaiming of rubber for the Midwest Rubber Reclaiming Company, once a subsidiary of the Akron company.

Declares Special Dividend

A special dividend of $2.00, in addition to the regular quarterly dividend of 62½ cents on the common stock, has been declared by the directors of the United Shoe Machinery Company. Both dividends were payable on January 6 to stockholders as of December 17. A special $2.00 dividend was also paid last year to holders of United stock.

U. S. to Redeem Notes

Redemption on March 1, 1936, has been announced by the United States Rubber Company of its Series L 6½% serial notes, due on March 1, 1937, at 101, and the Series M 6½% serial notes, due on March 1, 1938, at 102. These redemptions are part of the financial program launched by U. S. Rubber recently.

Delay Seiberling Meeting

The annual meeting of the stockholders of the Seiberling Rubber Company, Akron, Ohio, has been postponed to January 16, it has been announced by W. E. Palmer, secretary. The postponement was made necessary by the lack of a quorum at the regularly scheduled annual session on December 16.

Form Horace Rubber Company

Sam Leavy, New York City representative for the Elm City Rubber Company, of New Haven, Connecticut, for the past three years, has severed his connection with that firm and has formed the Horace Rubber Products Company, with offices at 39 East 19th Street, in New York City. The new company will deal in rubber bathing goods of all kinds, as well as sheetings, aprons, etc. Mr. Leavy has been associated with the rubber industry for 11 years.

Ohio Rubber Expanding

To house the salvage and running board stripper departments, the Ohio Rubber Company has started construction of a steel-framed and metal-sided building on land recently purchased close to its Willoughby, Ohio, factory. The single-story building will be 56 feet wide and 140 feet long. The building was made necessary by the need for increased storage space in the main plant, according to company officials.

TRENTON NEWS

Acquisition of the Triplewear Brake Lining Corporation, formerly known as the Durwyllan Company, has been announced by the Thermoid Company, of Trenton. Factory and main offices of Triplewear are located at Paterson, N. J. "This company, while comparatively small, is one of the most efficient molded brake lining manufacturing units in the industry," stated F. E. Schluter, President of Thermoid. "Triplewear has developed a unique process of rubber thread manufacture on which patents have been applied for. The rubber is vulcanized, formed and turned out in finished threads all in one process where heretofore many operations were required."

Norman Heil, president of Triplewear, and William Heil, secretary and factory manager, as well as junior executives will affiliate with Thermoid. All Triplewear brake lining accounts will be assured by both companies that they may continue to purchase Triplewear brake lining and other Triplewear products as long as they desire. Clutch facings have been recently added to their line. J. O. Camp, sales manager of Triplewear, will continue the management of sales.

John A. Lambert, treasurer and general manager of the Acme Rubber Manufacturing Company, Trenton, was re-elected president of the Rubber Manufacturers' Association of New Jersey, at the annual meeting, held on December 11, at the Trenton Club. Other officers re-elected were: Charles E. Stokes, (Home Rubber), secretary; Horace B. Tobin (Woven Steel Hose), treasurer; Lloyd R. Leaver (Hamilton Rubber), vice-president. Following the meeting a dinner was served.

Fred Matheis, for many years in charge of departmental routine for the Thermoid Company, has been appointed assistant vice-president and has taken over some of the duties of Lloyd R. Leaver, vice-president, who has joined the Hamilton Rubber Manufacturing Company, of Trenton. Mr. Matheis continues to manage the office of the mechanical goods division. S. H. Lyons, dean of the mechanical rubber goods sales division, has been named Eastern manager of this Thermoid department.

Sales in the Thermoid mechanical goods division have been more than 25% in excess of those for the preceding year, according to President F. E. Schluter. Additional machinery and equipment, recently ordered, is expected to be completely installed early this year to take care of the increased business.

The manufacture of a new four-in-one combination bath, consisting of a fountain sponge, a hand sponge equipped with a handle, bath shower, and a shampoo and massage spray, has been started by the U. S. Rubber Specialty Company, Trenton. The device is made completely of rubber.

Secretary R. W. Temple, of the Thermoid Managers Group, Inc., announces that the directors have declared a dividend of $1.00 per share for 1935 on the common stock. This is the first dividend paid by the company and represents 30% of the cost of each share. The Thermoid Managers Group, Inc., was organized in 1934 by several officers and junior executives of the Thermoid Company and its subsidiaries.

Discusses Rubber Accelerators

The early history and subsequent development of accelerators used in the rubber and allied industries is discussed in the December, 1935, issue of *Monsanto Current Events,* house organ published by the Monsanto Chemical Company, St. Louis, Missouri. The importance of accelerators to industry is stressed by the fact that approximately ten million pounds are used annually in the United States alone. The article briefly describes the several types of accelerators produced by the Rubber Service Laboratories Company, Inc., a Monsanto subsidiary operating out of Akron.

OCTOBER SHIPMENTS SHOW 24% INCREASE

Shipments of pneumatic casings during the month of October, 1935, are estimated to be 4,095,488 units, an increase of 24% above September this year and 36% over shipments made in October a year ago, according to statistics released by the Rubber Manufacturers' Association.

Production of pneumatic casings for October is estimated to be 4,050,509 casings, an increase of 7% over September this year and 23% above October, 1934.

Pneumatic casings in the hands of manufacturers on October 31st are estimated to be 8,290,594, practically no change as compared with stocks on hand September 30th of this year, although 4% below stocks on hand October 31, 1933.

The actual figures are as follows:

PNEUMATIC CASINGS

	Shipments	*Production*	*Inventory*
Oct., 1935	4,095,488	4,050,509	8,290,594
Sept., 1935	3,303,333	3,786,873	8,287,825
Oct., 1934	3,009,714	3,286,902	8,656,799

Heel Contracts Awarded

Three Akron rubber companies, Goodyear, Goodrich and Barefoot Sole, have been awarded government contracts for the supply of rubber heels. The Goodrich contract calls for delivery of 140,000 pairs, Goodyear's for 120,000 pairs, and Barefoot Sole's for 250,000 pairs. All of the heels are intended for the civilian conservation corps.

NEW ENGLAND NEWS

James H. Crawford has been appointed manager of construction material sales for the General Electric Company, Bridgeport, Conn., filling a vacancy caused by the recent death of Frank W. Hall. Mr. Crawford, whose appointment was announced by Vice-President C. E. Wilson, will supervise the sale of electrical building materials, including insulated wire and cable and other items in which rubber is used extensively.

The new manager has been with G-E more than 30 years, having started in the drafting department at the Schenectady works in 1905. He was connected later with the switchgear engineering and supply departments, and his service was interrupted only by overseas duty as a captain during the World War. In 1922 he was transferred to Bridgeport when the merchandise department was organized, became manager of conduit product sales in 1928 and assistant manager of construction material sales in 1932.

Franklin R. Hoadley, Farrel-Birmingham Company, Ansonia, Conn., represented 49 Connecticut industries at the recent Industrial Conference in Washington, D. C. N. W. Pickering, president of the same company, was recently elected one of the vice-presidents of the National Association of Manufacturers.

Middletown Rubber Company, Middletown, Conn., is building a small addition to its factory on Walnut street. It is of brick construction, 16 x 30 feet, one story in height.

Farrel-Birmingham Company, Ansonia, Conn., has reopened a part of the old Birmingham Iron Foundry for use in expansion of foundry operations. A few of the molders and other iron workers from the main plant have been transferred to the Birmingham foundry, according to Nelson W. Pickering, president.

Carl F. Siemon, Bridgeport, Conn., rubber manufacturer, has been re-elected president of the Twilight Club, Bridgeport, for his 11th consecutive term. The club's membership is limited to 30 Masons over 50 years of age who have qualified for all degrees of the order.

Obituaries

William J. B. Stokes

William J. B. Stokes, president of the Joseph Stokes Rubber Company, Trenton, N. J., died at his home, 219 West State Street, in Trenton, on December 15, at the age of 79. He had suffered ill health for several years and lay in a two-day coma prior to his death.

Born in Pottsville, Pennsylvania, in 1857, Mr. Stokes' family removed to Trenton shortly after his birth. He attended the State Model College of New Jersey and also the Trenton Business College. At an early age he turned to the rubber industry, in which his father was also engaged, working for several leading rubber companies.

At one time Mr. Stokes was associated with the Home Rubber Company, of which a brother, Charles E. Stokes, is now president, later joining the Trenton Rubber Manufacturing Company which subsequently became the Thermoid Rubber Company. He was treasurer of Thermoid for a number of years and was president in 1929, in which year Thermoid was sold to a group of New York bankers. Joining the Joseph Stokes Rubber Company, which his father had founded, he soon became president and was active, despite his poor health, up until the last few weeks prior to his demise.

Mr. Stokes was closely associated with both the social and political life of Trenton. He served as a member of the Common Council for many years, and was also a member of the Trenton Sinking Fund Commission. He was a 33rd degree Mason and a member of several shrines. As a tribute to a daughter and son-in-law, both of whom died during an influenza epidemic, Mr. Stokes built the Carolyn Stokes Day Nursery in Trenton and turned it over to The Contemporary, a charity organization, contributing substantial sums annually to its support. In the last few years he discovered a talent for drawing and spent much time in drawing and painting in water colors.

Mr. Stokes is survived by his widow, whom he married in 1881, two daughters, a son, a brother, two sisters and nine grandchildren. Funeral services were held at his home on December 18 with interment in the Ewing Church Cemetery in Trenton.

Wesley E. Wilson

Wesley E. Wilson, former president of the Akron Rubber Mold and Machine Company, of Akron, died on December 14 of pneumonia which set in as a result of injuries received in an automobile accident on October 24 in which his wife was killed. Born in Niles, Ohio, in 1869, Mr. Wilson was educated in grammar schools and worked for the Betzler and Wilson Fountain Pen Company for several years, becoming vice-president and assistant sales manager. In 1914 he joined the Akron machinery concern as sales manager and in turn was appointed vice president, assistant general manager and president. He was president at the time of his retirement in 1927. A member of several social clubs, Mr. Wilson was also a Mason, Shriner and Odd Fellow. He is survived by a son, three brothers and a step-brother. Burial was in Rose Hill Cemetery, Akron.

Cecil S. Conover

Cecil S. Conover, well known rubber executive, who was associated with the I. B. Kleinert Rubber Company, of College Point, L. I., N. Y., for the past seven years, died of a heart attack at his home in Middletown, N. J., on January 1. He was 54 years of age. Mr. Conover was head of the C. S. Conover Company for many years. When Kleinert took over the Conover concern in 1928 he joined the company and supervised the activities of this division, maintaining his contacts with the Conover clients. He was a member of the Holland Society of New York. A widow, son, daughter and a sister, all of Middletown, survive him.

Edward H. Huxley

Edward H. Huxley, for fifteen years president of the United States Rubber Export Company, a U. S. Rubber subsidiary, died at his home in Tenafly, N. J., on December 12, at the age of 62. He was a survivor of the tragic Sussex crossing in 1917 when the ship was torpedoed by the Germans while crossing the English channel, 180 passengers losing their lives. He was well known in foreign rubber circles being a constant traveler in the interests of U. S. Rubber. Mr. Huxley is survived by a widow and a son. Burial took place in Mount Auburn Cemetery, near Newton, Massachusetts, his birthplace.

Alfred E. Snyder

Alfred E. Snyder, world war veteran and former purchasing agent for the Republic Rubber Company, Youngstown, Ohio, died in the Youngstown Hospital, early last month, at the age of 41. Born in Salem, Ohio, in 1894, Mr. Snyder came to Youngstown in 1915 and soon joined the Republic Rubber Company's office staff, advancing rapidly until he assumed the purchasing agent position which he held for a number of years. He was a member of the Delta Theta fraternity. Interment was in Maple Grove Cemetery, Ravenna, Ohio.

Henry H. Durr

Henry H. Durr, former president and general manager of the Victor Rubber Company, Springfield, Ohio, died on December 4 at his Springfield home, death being attributed to heart disease. An executive of Victor for many years, Mr. Durr was elected president of the company in 1925 succeeding H. S. Berlin. When Victor later entered financial difficulties he was appointed receiver by the court. He is survived by four daughters, a son and a sister. Burial was made in Ferncliff Cemetery, Springfield.

James Brotherton

James Brotherton, one of the rubber industry's pioneer salesmen, died at his home, 601 West 164th Street, in New York City, on December 15, at the age of 81. For more than fifty years he was employed by the U. S. Rubber Company and was serving as assistant manager of the New York glove division at the time of his retirement in 1924. He is survived by a sister.

William P. Grant

William P. Grant, formerly superintendent of the Philips Insulated Wire Company, Philipsdale, Rhode Island, died at his home in Pawtucket on December 4, after a long illness, at the age of 53. He retired from the Philips concern in 1929. Mr. Grant was a member of a Masonic order. A widow and two daughters survive.

Two New Rubber Chemicals

Two new rubber chemicals, one an accelerator, the other an antioxidant, have been introduced by the Rubber Service Laboratories Company, of Akron. "El-Sixty," the accelerator, has been tested alone and in combination with activators, such as Diphenylguanidine, and is said to produce excellent results in practically all types of compounding. According to Rubber Service Laboratories, it is of special interest in high clay stocks and should find good use in mechanical goods stocks. "Perflectol," the antioxidant, is said to impart excellent flexing properties to tire tread stocks, etc. It is superior in flexing value to the company's regular antioxidants, such as Flectol B, and is also claimed to be superior to competitive types. It is about equal in aging qualities to antioxidants now on the market.

Hose Contract to Republic

A contract totaling $24,021 was awarded by the U. S. Navy to the Republic Rubber Company, of Youngstown, Ohio, on December 14. The provisions of the contract call for the delivery of cotton fire hose to the bureaus of yards and docks, and construction and repair at various Eastern naval stations. The Republic bid was the lowest of fourteen submitted.

Names in the News

E. D. NATHAN has been named assistant advertising manager of the B. F. Goodrich Tire Division. He has been associated with Goodrich sales, export and advertising departments since 1925.

HENRY G. HARPER, advertising manager, Goodyear Tire & Rubber Company, Akron, suffered severe bruises on December 17 when a taxi in which he was riding was involved in a collision.

HAROLD F. STOSE, research chemist, Flintkote Company, East Rutherford, N. J., has resigned to become chief chemist and chemical engineer for the Vulcan Corp., Portsmouth, Ohio.

HARVEY S. FIRESTONE, SR., chairman of the board, Firestone Tire & Rubber Company, Akron, celebrated his 67th birthday on December 20. He played host to some 300 members of the Firestone sales organization at his home, Harbel Manor.

DR. HOWARD E. FRITZ, of the B. F. Goodrich research division, discussed "Recent Developments in Rubber" before a meeting of the Rotary Club in Akron on December 12.

F. B. DAVIS, president, U. S. Rubber Company, New York City, was elected a vice-president of the National Association of Manufacturers at the annual convention held in New York City last month.

C. JAMES DUNNE, for nine years manager of the Aetna Rubber Company, Ashtabula, Ohio, was elected vice-president of the First Federal Savings and Loan Association of Ashtabula recently. The loan company formally opened new offices last month.

FRANKLIN G. SMITH, president, Ohio Rubber Company, Willoughby, Ohio, announced a change in wage policies last month which grants a daily guaranteed minimum to the piece worker higher than the former rate of pay.

J. P. SEIBERLING, general sales manager, Seiberling Rubber Company, Akron, spoke on "Safeguarding Independent Business" before the convention of the Motor & Equipment Wholesalers Association held in Atlantic City recently.

E. J. SMITH, president, White Rubber Company, Ravenna, Ohio, presided over a Xmas dinner tendered the company's employes at the Hotel Ravenna during the Holidays.

JAMES D. TEW, president, B. F. Goodrich Company, Akron, has been elected an Ohio director of the National Association of Manufacturers.

J. A. FAUCHER has been appointed manager of the repair materials department of the U. S. Rubber Products, Inc., and will also be responsible for the company's policies relating to retreaded tires.

WALTER L. TANN, hydraulic engineer, Farrel-Birmingham Company, Inc., Ansonia, Conn., was the principal speaker at the December meeting of the Engineers Club held at the Stratfield Hotel, in Bridgeport. He discussed "Hydraulic Presses and Other Applications of Hydraulic Power."

ROBERT J. HIMMELRIGHT, secretary, Monarch Rubber Company, Hartville, Ohio, addressed a meeting of the Canton and Eastern Ohio Association of Purchasing Agents at the Elks Club in Canton on December 18. He outlined conditions in the rubber industry.

JAMES S. ROTHSCHILD, son of Marcus Rothschild, well known crude rubber broker, made his first trade in rubber on the floor of the Commodity Exchange in mid-December a few hours after he was admitted to membership in the Exchange.

LLOYD R. LEAVER, formerly vice-president, Mechanical Rubber Goods Division, Thermoid Rubber Company, Trenton, N. J., has joined the sales organization of the Hamilton Rubber Manufacturing Company, also of Trenton, with the title of Executive Sales Assistant. He will operate out of the Trenton headquarters.

T. B. TOMKINSON, comptroller, B. F. Goodrich Company, Akron, was elected president of the Portage Country Club on December 23, succeeding B. M. Robinson, assistant secretary, Firestone Tire & Rubber Company.

C. W. UFFORD and G. N. EDWARDS, personnel manager and new products engineer, respectively, of the Ohio Rubber Company, Willoughby, Ohio, attended the American Vocational Association Convention at Chicago last month.

STACY G. CARKHUFF, secretary, Firestone Tire & Rubber Company, Akron, attended the annual convention of the National Association of Manufacturers held in New York City early in December.

E. F. SHAVER, formerly associated with the Lee-Tex Rubber Products Corporation, Chicago, in an executive position, has joined Ford, Browne & Mathews, Chicago advertising agency, as production manager.

Carlton Joins Huber Corp.

C. A. Carlton, widely known research and development engineer, has been appointed Manager, Development Division, J. M. Huber Corporation, with headquarters at Borger, Texas, where he will devote his time to research problems involving the manufacture and use of Huber carbon blacks and clays. He has been associated with the rubber industry since 1916.

While attending the University of Akron, Mr. Carlton started work at the Miller Rubber Company in 1916. Graduating in 1917 with a B. S. degree, he joined the Republic Rubber Company, at Youngstown, in charge of the research department and chemical laboratory. During the war he was a member of the Engineers Reserve Corps and was stationed at the University of Akron as an instructor, in addition to keeping books and procuring supplies for the tire repair units stationed at the University for training.

Shortly after the war, Mr. Carlton became chief chemist for the Avalon Rubber Company, of Barberton, and then went with the Kelly Springfield Tire Company in charge of organic research. Later he joined the Columbia Tire & Rubber Company, of Mansfield, Ohio, remaining with Columbia for six years as chief chemist. Early in 1928 he became associated with the Seiberling Rubber Company as chief chemist and was appointed Development Manager in 1930 in charge of tire construction, design, specifications and compounding.

During his work with Seiberling, Mr. Carlton supervised the technical work for several foreign factories including the Seiberling Rubber Company of Canada, Ltd.; the Avon India Rubber Company, of Wiltshire, England; Bergougnan, Clermont-Ferrand, of France; and the Companhia Brasileria de Artefactos de Borracha, of Rio de Janeiro, in Brazil, which factory was opened only recently. The new Huber executive is a member of the Lambda Chi Alpha fraternity.

New Rubber Goods

"Sniffles" Uses Rubber Cone

"Sniffles" Nose Drops, recently introduced by the Towle Laboratories, St. Paul, Minnesota, is being merchandised

in an unusually attractive package one of the main features of which is a new method of application accomplished through the use of a rubber cone. Utilization of the rubber cone eliminates the possibility of injury to the nostril when the drops are applied, particularly where children are concerned. The package has been designed to appeal to the younger generation. The "Sniffles" package is its own container and its own applicator. Consumer advertising is stressing these two points plus the importance of the rubber cone.

Barcalo Six-Way Pillow

Several new features have been incorporated into the Barcalo Six-Way Pillow manufactured by the Barcalo Manufacturing Company, Buffalo, N. Y. Filled with kapok, the covering of the pillow is Du Pont "Doe-Tex," a rubberized fabric with a suede-like appearance. It is waterproof and light, and may be used as a life-preserver if necessary. Its construction permits adaptation to many positions. The softness is adjustable by means of a draw-string.

Colored Hard Rubber Combs

Said to be the first time in the history of comb sales, the Vulcanized Rubber Company, New York City, has perfected a process which combines color effects with genuine hard rubber. Known as the "Hollywood Combs," a line is being merchandised by the company embracing four colors, i.e., midnight red, crystal gold, snowflake and sea green. The combs are being merchan-

dised in two ways: one dozen assorted styles and colors on a display card featuring two prominent motion picture stars and on individual star cards packed six dozen to the box.

Gooseskin Travel Package

Based on the success of its "Stormy Weather" raincoat package, the Arrow Importing Company, of Cleveland, Ohio, has introduced another member to its packaged group, i.e., the Gooseskin Travel Package. The new package, in black and brown, is instantly convertible into a useful toilet kit, and lends sales appeal to the purchaser. It is made of leatherette and lined with rubber for serviceability. Containing the company's "Raingard," the new unit makes an attractive gift item.

Casco Bicycle Fenderette

Specifically designed to fit all bicycle fenders, the Casco Products Corporation, Bridgeport, Connecticut, is featur-

ing the Casco Bicycle Fenderette, a protective device which keeps mud, water and tar from splashing. Completely made of rubber, finished with a glossy black lacquer, the Fenderette is easily installed over clip or rear fender by means of a clamp, or it may be bolted onto front or rear fender by drilling a 1/8-inch hole and using a supplied bolt. Four models are available, one all rubber and the other three using one, two and three red jewels, respectively. Model 1-R is illustrated herewith.

New Type Tennis Shoe

Said to be the first time that any manufacturer has been able to vulcanize a rubber sole to a leather upper and still achieve the durability and comfort of a leather upper plus the flexibility of a rubber sole, a new line of tennis shoes had been introduced by the Endicott Johnson Corp., Endicott, N. Y. Merchandised under the name of "Racqeteer," the models in the new line have been primarily designed for tennis, but may also be worn on various other sport occasions. The vulcanized rubber soles are similar to those used in regular tennis shoes, while the leather uppers are made in various colors.

Howe Baumann Punching Bag

A new balloon novelty, termed Scrappy's Punching Bag, has been introduced by the Howe Baumann Balloon Company, Newark, N. J. Supplied with the balloon is a short stick and a rubber band, the rubber band being twisted around both the balloon outlet and the stick thus forming a "punching bag." The balloon may be held in one hand, between the fingers, and punched. Several small objects within the balloon give a rumbling sound while it is being punched.

Left: The Barcalo Six-Way Pillow, covered with rubberized fabric, assures comfort and relaxation to the user.

Right: Three simple steps are required to assemble Scrappy's Punching Bag, the latest Howe Baumann balloon novelty.

MARKETS

RUBBER—COTTON AND FABRICS—CHEMICALS

NEW YORK, JANUARY 9, 1936

Crude Rubber

DUE to a surprising demand from factories for crude rubber, prices quickly recovered last month from the setback offered by the International Rubber Regulation Committee's grant to the Netherlands Indies of an increased quota. This impressive demand has continued throughout the period with a slight lull during the holidays. From a price of 12.93 for spot on December 10 quotations climbed steadily, reaching a 13.93 high for the period on January 8, profit-taking resulting in a 12 point set-back to 13.81 today (January 9). Bullish statistical reports, indicating a steady decline in available stocks, also tended to strengthen prices with an anticipated continuation of this absorption expected to result in still higher prices for both spot and futures. At the close of 1935 spot prices were only ¼ cents a pound above prices prevailing at the close of the previous year. Quotations in the outside market, Exchange, London and Singapore, follow:

As of January 9

Plantations—

Ribbed Smoked Sheets—			
No. 1 Spot	—	@	.13¾
April-June	—	@	.14¼
No. 2	—	@	.13⅞
No. 3	—	@	.13¾
No. 4	—	@	.13½
Thin Latex Crepe	—	@	.14¼
Thick Latex Crepe	—	@	.14⅛
Brown Crepe, No. 1	—	@	.13⅞
Brown Crepe, No. 2	—	@	.13¾
Amber Crepe, No. 2	—	@	.13⅞
Amber Crepe, No. 3	—	@	.13¾
Amber Crepe, No. 4	—	@	.13⅝
Brown Crepe, Rolled	—	@	.13⅜

Latex—

Liquid Latex, per gal.	.57	@	.58

Paras—

Up-River, fine	—	@	.12
Acre Bolivian, fine	—	@	.12¼

Balata—

Block, Ciudad	—	@	.32

LONDON MARKET

Standard Smoked Sheets—Buyers—January 9			
January	—	@	6 1/16d
April-June	—	@	6 1/32d

SINGAPORE MARKET

Standard Smoked Sheets—Sellers—January 9			
January	—	@	6½d
April-June	—	@	6 3/32d

Reclaimed Rubber

Conditions have improved in reclaims after the usual holiday lull with reclaimers viewing the year 1936 with optimism based on definite signs of general business recovery. Prices, since our last report, remain the same with one or two slight increases. Current quotations follow:

High Tensile

Super-reclaim, black	lb.	.08¾	@	.09
High Tensile Red	lb.	.07	@	.07¼

Shoe

Unwashed	lb.	.06½	@	.06¾
Washed	lb.	.08	@	.09

Tube

No. 1 (Floating)	lb.	.14	@	.14¼
No. 2 (Compounded)	lb.	.07	@	.07¼
Red tube	lb.	.06½	@	.07¼

Tires

Black	lb.	.05	@	.05¼
Black, selected tires	lb.	.05¼	@	.05½
Dark Gray	lb.	.06¼	@	.06½
White	lb.	.09¼	@	.09½
Truck, Heavy Gravity	lb.	.05½	@	.06
Truck, Light Gravity	lb.	.06	@	.06¼

Miscellaneous

Mechanical blends	lb.	.03½	@	.04½

Scrap Rubber

Increased interest shown by reclaimers in scrap rubber has resulted in slightly higher prices on all lines shown in this report with the exception of auto tire peelings and mixed auto stocks. Present levels are expected to continue for the next few weeks. Current quotations follow:

(Prices to Consumers)

Auto tire peelings	ton	17.50	@	19.00
Mixed auto	ton	7.50	@	8.50
Clean solid truck tires	ton	34.00	@	36.00
Boot and shoes	ton	21.50	@	23.00
Arctics, untrimmed	ton	17.50	@	19.00
Inner tubes, No. 1	lb.	.08	@	.08½
Inner tubes, No. 2	lb.	.03½	@	.03¾
Inner tubes, Red	lb.	.03⅜	@	.03⅝

Cotton

Cotton prices moved in a narrow range last month due to the uncertainty with regard to future control of cotton production in this country in the event that the Supreme Court nullified the Government's agricultural program. Low for the month was 11.65 on December 16, a few days after our last report, with the highest quotation for the period being 12.20 on January 2. Despite the Supreme Court's decision on January 6 that the AAA and Bankhead Cotton Control Act were unconstitutional in character, cotton prices held up well dropping only 35 points from 12.15 on January 6 to 11.80 on January 7, recovering to 11.90 on the following day with indications of more complete recovery in the next few days. Cotton merchants generally expect better business during the next few months with increased demand from abroad. Futures seem attractive at current levels. Quotations for middling uplands on the New York Cotton Exchange follow:

	December 9	January 9		
	Close	High	Low	Close
January	....	11.68	11.50	11.50
March	11.41	11.09	10.90	10.90
May	11.34	10.76	10.51	10.51

Tire Fabrics

(Prices Net at the Mill)

Peeler, carded, 23/5/3	lb.	.31	@	.31½
Peeler, carded, 23/4/3	lb.	.32	@	.32½
Peeler, carded, 15/3/3	lb.	.29	@	.29½
Peeler, carded, 13/3/3	lb.	.28	@	.28½
Egyptian, carded, 23/5/3	lb.	.45	@	.45½
Egyptian, combed, 23/5/3	lb.	.50	@	.50½
CHAFERS				
Carded, American, 1 1/16"	lb.	.31	@	.31½
Carded, American, 1"	lb.	.28	@	.31
LENO BREAKER				
Carded, American, 1 1/16"	lb.	.31	@	.31½
Carded, American, 1"	lb.	.29	@	.30

Sheetings

Count	Width	Weight			
48x40	36 in.	5.50	lb.	— @	.05¼
40x40	36 in.	6.15	lb.	— @	.04½
40x36	36 in.	6.50	lb.	— @	.04½
48x48	40 in.	2.50	lb.	— @	.10
48x48	40 in.	2.85	lb.	— @	.08¾
56x40	40 in.	3.60	lb.	— @	.08
48x44	40 in.	3.75	lb.	— @	.07
44x40	40 in.	4.25	lb.	— @	.06½

Ducks

Enameling	lb.	.32	@	.36
Belting and Hose	lb.	.32	@	—
Single filling, A grade	lb.	.16½	@	—
Double filling	lb.	.17½	@	—

Closing Rubber Prices on New York Commodity Exchange, Inc.

No. 1 Standard Contract of 10 tons

FROM DECEMBER 10 to JANUARY 9

Date	Spot	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Sales
Dec. 10	12.93	12.93	13.01	13.10	13.19	13.27	13.35	13.40	13.46	13.52	13.59	13.66	13.73		133
11	13.00	12.96	13.04	13.13	13.23	13.30	13.38	13.44	13.50	13.56	13.63	13.70	13.77		177
12	13.00	12.99	13.07	13.16	13.26	13.32	13.39	13.46	13.53	13.59	13.66	13.73	13.80		83
13	13.00	13.02	13.10	13.19	13.28	13.36	13.45	13.52	13.59	13.65	13.72	13.79	13.86		101
14	13.13	13.14	13.22	13.31	13.40	13.47	13.54	13.60	13.66	13.72	13.80	13.87	13.94		66
15	....	....	....	....	....	....	....	....	....	....	....	....	....		...
16	13.06	13.09	13.15	13.23	13.32	13.39	13.46	13.53	13.60	13.67	13.74	13.80	13.87		86
17	13.12	13.12	13.18	13.27	13.37	13.43	13.50	13.58	13.66	13.73	13.80	13.87	13.94		90
18	13.18	13.20	13.26	13.34	13.43	13.51	13.59	13.66	13.73	13.80	13.87	13.94	14.01		181
19	13.25	13.21	13.27	13.36	13.45	13.52	13.60	13.67	13.74	13.80	13.87	13.94	14.01		227
20	13.18	13.16	13.22	13.31	13.41	13.49	13.58	13.64	13.71	13.77	13.83	13.92	13.99		95
21	13.25	13.22	13.26	13.35	13.45	13.53	13.61	13.69	13.77	13.83	13.90	13.96	14.03		75
22	....	....	....	....	....	....	....	....	....	....	....	....	....		...
23	13.25	13.21	13.25	13.34	13.44	13.52	13.60	13.66	13.73	13.79	13.85	13.92	13.99		72
24	13.25	13.22	13.26	13.35	13.45	13.53	13.61	13.68	13.75	13.80	13.86	13.93	14.00		22
25	....	....	....	....	....	....	....	....	....	....	....	....	....		...
26	13.31	13.30	13.34	13.43	13.52	13.60	13.68	13.75	13.81	13.88	13.95	14.02	14.09		53
27	13.31	....	13.33	13.41	13.50	13.57	13.65	13.72	13.79	13.87	13.95	14.03	14.10		138
28	13.37	....	13.32	13.41	13.51	13.58	13.66	13.74	13.82	13.90	13.98	14.06	14.14		96
29	....	....	....	....	....	....	....	....	....	....	....	....	....		...
30	13.44	....	13.41	13.50	13.59	13.67	13.75	13.83	13.92	13.98	14.05	14.13	14.21		257
31	13.50	....	13.47	13.55	13.63	13.69	13.76	13.85	13.94	14.01	14.08	14.15	14.22		71
Jan. 1	....	....	....	....	....	....	....	....	....	....	....	....	....		...
2	13.50	....	13.48	13.56	13.64	13.71	13.79	13.86	13.94	14.00	14.06	14.12	14.19	14.26	72
3	13.56	....	13.57	13.66	13.75	13.83	13.91	13.98	14.05	14.12	14.19	14.27	14.34	14.40	202
4	13.56	....	13.58	13.68	13.78	13.85	13.93	14.00	14.07	14.14	14.22	14.30	14.37	14.43	40
5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	...
6	13.70	....	13.68	13.78	13.89	13.95	14.01	14.08	14.16	14.25	14.34	14.42	14.49	14.57	330
7	13.75	....	13.76	13.85	13.95	14.02	14.09	14.16	14.24	14.32	14.40	14.47	14.54	14.60	231
8	13.93	....	13.88	13.96	14.05	14.13	14.21	14.28	14.35	14.43	14.50	14.58	14.66	14.73	411
9	13.81	....	13.80	13.88	13.96	14.03	14.11	14.19	14.27	14.34	14.42	14.50	14.57	14.64	259

Rubber CHEMICAL Markets

NEW YORK, JANUARY 10, 1936

[All Quotations F.O.B. Works Unless Otherwise Noted]

ACCELERATORS

Organic			
A-1 (Thiocarbanilid)	lb.	.21 @	.25
A-5-10	lb.	.33 @	.36
A-7	lb.	.53 @	.65
A-11	lb.	.60 @	.75
A-16	lb.	.55 @	.65
A-19	lb.	.56 @	.75
A-32	lb.	.70 @	.80
A-17	lb.	— @	—
Aldehyde ammonia, crystals	lb.	.65 @	.70
Altax	lb.	— @	—
Captax	lb.		
Crylene	lb.	.55 @	.65
paste	lb.	.45 @	.55
Di-Ortho-Tolyguanidine	lb.	.44 @	.47
Diphenylguanidine	lb.	.35 @	.37
Ethylidene aniline	lb.	.45 @	.47½
Formaldehyde aniline	lb.	.37½ @	.42
Guantal	lb.	.42 @	.51
Heptene	lb.	.40 @	—
Hexamethylene-tetramine	lb.	.37 @	—
Lead Oleate, No. 999	lb.	.13 @	—
Witco	lb.	.11 @	—
Lithex	lb.	.18 @	.20
Methylenedianiline	lb.	.36 @	.37
Monex	lb.	3.25 @	—
Oxynone	lb.	.68 @	.80
Phenex	lb.	.50 @	.55
Pipsolene	lb.	3.55 @	4.00
R & H #0	lb.	.40 @	.41
R & H 50	lb.	.40 @	.41
R-2	lb.	1.55 @	1.90
Safex	lb.	1.20 @	1.25
SPDX	lb.	.75 @	—
Super-Sulphur No. 1	lb.		
No. 2	lb.		
Thiocarbanilid, drums	lb.	.21 @	.25
Trimene	lb.	.75 @	—
base	lb.	1.20 @	—
Triphenylguanidine	lb.	.58 @	.60
Tuads	lb.		
Ureka	lb.	.62 @	1.00
Ureka B	lb.	— @	—
Ureka C	lb.	.58 @	.69
Vulcanex	lb.		
Vulcone	lb.		
Vulcanol	lb.		
Z-88-P	lb.	.48 @	.60
Zimate	lb.		
Inorganic			
Litharge, domestic	lb.	.06½ @	—
Magnesia, calcined, heavy	ton	60.00 @	65.00

COLORS

Blacks (See Compounding Materials)

Blues			
Prussian	lb.	.37 @	.39
Ultramarine	lb.	.12 @	.14
Browns			
Sienna, Italian	lb.	.06 @	'13
Umber, Turkey	lb	.04 @	.04½
Greens			
Chrome, light	lb.	.20 @	.30
medium	lb.	.21 @	.31
Chromium Oxide, bbl.	lb.	.22 @	.23
Guignet's Green	lb.	.70 @	—
Reds			
Antimony			
crimson, 15/17	lb.	.48 @	—
sulfur, free	lb.	.48 @	.60
Indian English	lb.	.09 @	.10
Domestic (Maroon)	lb.	.11 @	—
Red oxide, pure	lb.	.10 @	.12
Rub-Er-Red, f.o.b Easton	lb.	.09½ @	—
Whites			
Cryptone CB, No. 21	lb.	.06 @	.06¼
Cryptone, No. 19	lb.	.06 @	.06¼
Cryptone, ZS-20	lb.	.10¼ @	.10¾
Cryptone, ZS-86	lb.	.10½ @	.10¾
Lithopone			
Albalith, black label—11	lb.	.04½ @	.04¾
Azolith	lb.	.04½ @	.04¾
Rayox	lb.		
Titanium oxide	lb.	.17 @	.19
Titanox B	lb.	.06 @	.06½
Titanox C	lb.	.06 @	.06½
Zinc Oxide—American Process			
American Azo:			
ZZZ (lead free)	lb.	.05 @	.05¼
ZZ (leaded)	lb.	.04¾ @	.05¼
Anaconda, lead free	lb.	.05 @	.05¼
Horsehead Lead Free Brand:			
Special—3	lb.	.05 @	.05¼
XX Red—4	lb.	.05 @	.05¼
XX Red—72	lb.	.05 @	.05¼
XX Red—78		.05 @	.05¼
XX Red—103	lb.	.05 @	.05¼
U. S. P.—X, bbls.	lb.	.08 @	.08¼
Kadox, black label—15	lb.	.05 @	.05¼
Blue label—16	lb.	.05 @	.05¼
Red label—17	lb.	.05 @	.05¼
St. Joe, black label	lb.	.05 @	.05¼
green label	lb.	.05 @	.05¼
red label	lb.	.05 @	.05¼
Zinc Oxide—French Process			
Florence White seal—7 bbls.	lb.	— @	.06¾
Green seal—8	lb.	.06 @	.06¼
Red seal—9	lb.	.05½ @	.05¾
Yellows			
Chrome	lb.	.15 @	.16
Ocher, dom. med.	lb.	.02¾ @	—

BLACKS

Arrow "Aerfloted" Specification	lb.	.0535 @	.0825
Bone, powdered	lb.	.05½ @	.12½
Carbon, compressed	lb.	.0535 @	.0825
uncompressed	lb.	.0535 @	.0825
"Certified," Cabot	lb.	.0535 @	.0825
Spherons	lb.	.0535 @	.0825
"Disperso"	lb.	.0535 @	.0825
Drop, bbls.	lb.	.05½ @	.14
"Excello," compressed	lb.	.0535 @	.0825
"Fumonex"	lb.	.03 @	.07
"Gastex"	lb.	.03 @	.07
Lampblack	lb.	.07 @	.12
"Micronex"	lb.	.0535 @	.0825
"Supreme"	lb.	.0535 @	.0825
Thermatomic—"P 33"	lb.	— @	—
"Thermax"	lb.	— @	—
United "Dixie" & "Kosmos"	lb.	.0535 @	.0825

COMPOUNDING MATERIALS

Aluminum Flake	ton.	21.85 @	24.50
Ammonia carbonate, lump	lb.	.10½ @	.12
Asbestine	ton	14.00 @	15.00
Barium carbonate (98-100%)	ton	56.50 @	61.50
Barium Dust	lb.	.05 @	.06
Barytes	ton	22.00 @	24.00
Basofor	lb.	.04½ @	—
Bentonite	lb.	.02 @	.03
Blanc fixe dry f.o.b. works	ton	70.00 @	75.00
Calcene	ton	37.50 @	45.00
Catalpo (fact.)	lb.	.02 @	—
Chalk, precipitated			
Suprex white, extra lt.	ton	45.40 @	60.00
heavy	ton	45.00 @	55.00
Clay, Kaolin, domestic	ton	7.50 @	15.00
Aerfloted, Suprex	ton	8.50 @	10.00
Congaree	ton	9.00 @	—
Dixie	ton		
Dixie, Jr.	ton		
McNamee	ton		
Par	ton		
Tensulite		15.00 @	—
Witco	ton	8.50 @	9.00
Cotton Flock	lb.	.10½ @	.18
Glues, extra white	lb.	.28 @	.30
medium white	lb.	.14 @	.19
Kalite No. 1	ton	30.00 @	55.00
Kalite No. 3	ton	40.00 @	65.00
Magnesium carbonate	lb.	.08 @	—
Mica	ton	65.00 @	80.00
Pyrax A	ton	— @	—
Rottenstone (powdered)	lb.	.02½ @	.05
Soapstone, powdered	ton	16.00 @	22.00
Starch, powdered	cwt.	3.56 @	3.76
Talc, domestic	ton	12.00 @	15.00
Whiting, commercial	ton	17.00 @	18.00
Columbia Filler	ton	9.00 @	14.00
English Cliffstone	ton	33.00 @	43.00
Sussex	ton		
Witco	ton	15.00 @	—
Wood Flour	ton	18.00 @	30.00
Zinc Carbonate	lb.	.10¼ @	.11
Zinc Stearate	lb.	.26 @	—

MINERAL RUBBER

Black Diamond	ton	27.00 @	—
Genasco, solid (factory)	ton	25.00 @	27.00
Hard Hydrocarbon	ton		
Parmr, solid	ton	25.00 @	28.00
Pioneer, MR, solid	ton		
Pioneer-granulated	ton		

SPECIALTIES

Aromatics—Rodo	lb.		
Para-Dors No. 5145	lb.	2.00 @	—
Sunproof	lb.	.35 @	.37½
Sponge Paste	lb.	— @	.80
Tonox	lb.	.56 @	.60

SOFTENERS

Acids			
Acetic, 28%, bbls.	100 lb.	2.45 @	2.70
glacial, USP, bbls.	100 lb.	14.00 @	—
Nitric, 36 degrees	cwt.	5.00 @	6.00
Sulfuric, 66 degrees	ton	15.50 @	16.50
Acids, Fatty			
Laurex	lb.	.15 @	.16
Stearex	lb.	.08½ @	.13
Stearic, double pressed	lb.	.09 @	.14
Stearite	lb.	.08 @	—
Alkalies			
Caustic Soda, 76%	cwt.	3.60 @	3.75
Soda Ash, 58% C.L.	cwt.	2.52 @	—

Oils

Corn, refined, bbls.	lb.	.12½ @	—
Cottonseed, crude	gal.	.093 @	.10
Cycline Oil	gal.	.15 @	.28
Degras (c.l. 100 bbls.)	lb.	.02¾ @	—
Less c.l. (10-25 bbls.)	lb.	.03 @	—
Lots less than 10 bbls.	lb.	.03¼ @	—
Fluxrite	lb.	.05½ @	.06½
Palm Lagos	lb.	.05 @	—
Niger	lb.	.04¾ @	—
Para-Flux	gal.	.17 @	—
Petrolatum, light	lb.	.02 @	.02½
Pigmentaroil, tank cars	gal.	.16 @	—
in drums	gal.	.22 @	.23½
Pine, steam distilled	gal.	.64 @	.65
dest. dist., drums	gal.	.40 @	.45
Rosin Oil, cmpd.	gal.	.40 @	—
Rubtack	lb.	.40 @	—
Seedine, c.l.	gal.	.07¼ @	—
Tackol	lb.	.08½ @	.18
Witco Palm Oil	lb.	.05 @	—
Witco Softener (f.o.b. wks.)	gal.	.15 @	—
Woburn No. 8, c.l.	lb.	.06 @	—
Wobonite, c.l.	lb.	.05 @	—
Resins and Pitches			
Pitch, Burgundy	lb.	.07 @	.08
coal tar	gal.	.07½ @	.08
hardwood	ton	25.00 @	30.00
pine, 200 lb. gr. wt.	bbl.	6.50 @	—
Rosin, grade K, 280 lb.	bbl.	5.55 @	—
Pigmentar, tank cars	gal.	.19 @	—
in drums	gal.	.25 @	.27
R. S. L. Resin	lb.	— @	—
Retort Pine Tar, drums	bbl.	12.00 @	13.00
Solvents			
Acetone, pure	lb.	.12½ @	.13½
Alcohol, denatured, methanol, No. 1 bbls.	gal.	.29½ @	—
Benzene, 90%	gal.	.15 @	.24
Beta-Trichlorethane	gal.	— @	—
Bondogen	lb.	— @	—
Carbon, bisulfide	lb.	.05½ @	.06
Carbon, tetrachloride	lb.	.05 @	.05¾
Dichlorethylene	lb.	.29 @	—
Dipentene, cml., drums	gal.	.41 @	.44
Dryolene (f.o.b. Okla.)	gal.	.10 @	.10½
Ethylene dichloride	lb.	.05½ @	.06½
Gasoline, steel bbls.	gal.	.16 @	—
Naphtha, solvent	gal.	.26 @	.31
Plastogen	lb.		
Reogen	lb.		
Rub-Sol (f.o.b. Okla.)	gal.	.09 @	—
Trichlorethylene	lb.	— @	.09½
Turpentine, spirits	gal.	.46½ @	.50½
dest. dist., drums	gal.	.45 @	.48
Waxes			
Beeswax, white	lb.	.40 @	.41
Carnauba, yellow	lb.	.39 @	.40
Ceresin, white, dom.	lb.	.08 @	.11
Montan, crude	lb.	.10 @	.11
Paraffin (c.l.—f.o.b. N. Y.)			
Yellow crude scale	lb.	.02 @	.02½
White crude scale 124/126	lb.	.02 @	.02½
Refined, 125/127	lb.	.03¾ @	.04

ANTI-OXIDANTS

AgeRite, Gel	lb.		
HP	lb.		
Powder	lb.		
Resin	lb.		
White	lb.		
Albasan	lb.	.70 @	.75
Antox	lb.		
B-L-E	lb.	.57 @	.60
Flectol-H	lb.	— @	—
Flectol White	lb.	— @	—
Flectol B	lb.	— @	—
Neozone	lb.		
Oxynone	lb.	.66 @	.90
Retardex	lb.	.35 @	.40
Stabilite	lb.	.57 @	.62
Stabilite Alba	lb.	.70 @	.75
VGB	lb.	.55 @	.60

MOLD LUBRICANTS

Aresklene	lb.	— @	—
Cocoa Soapstock	lb.	.06 @	.08
Dipex	lb.	.06 @	.08
Laurex	lb.	.24 @	.30
Rusco, f.o.b. Nitro	lb.	.12 @	.30
Sericite, f.o.b. N. Y.	ton	65.00 @	—
Soap Tree Bark, cut, sifted	lb.	.06 @	.08
Zip (Mold Wash)	lb.	— @	—

FACTICE OR RUBBER SUBSTITUTES

Amberex	lb.	.26 @	—
Black	lb.	.08½ @	—
White	lb.	.08 @	.12
Brown	lb.	.08 @	.14
Duphax	lb.	.11 @	—

VULCANIZING INGREDIENTS

Sulfur Chloride, yellow (drs.)	lb.	.03½ @	.04
Sulfur flour.			
Refined, 100% pure (bags)	cwt.	3.45 @	—
Commercial (bags)	cwt.	1.95 @	2.80
Telloy	lb.		
Vandex	lb.		

Crude Rubber
Latex and Guayule
Reclaimed Rubber
Tires and Tubes

STATISTICS OF THE INDUSTRY

Rim Production
Automobiles
Gasoline
Cotton Prices

U. S. Imports and Exports of Crude Rubber

YEARS	Gross Imports: Long Tons	Gross Imports: Total Declared Value	Gross Imports: Average Declared Value per pound Cents	Re-exports: Long Tons	Re-exports: Total Declared Value	Re-exports: Average Declared Value per pound Cents	Net Imports: Long Tons
1922	301,076	101,843,188	15.10	4,809	1,921,828	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,231,331	23.71	10,309	6,057,637	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926	413,338	505,817,807	54.63	17,671	22,470,583	56.77	395,667
1927	426,258	339,874,774	35.60	27,775	24,735,488	39.76	398,483
1928	439,731	244,854,973	25.03	32,159	18,128,361	25.17	407,572
1929	560,084	239,178,783	19.15	36,485	16,868,733	20.64	523,599
1930	482,082	139,134,330	12.89	30,205	9,316,205	13.77	451,877
1931	497,138	72,918,949	6.54	25,595	4,255,472	7.42	471,543
1932	409,584	31,936,459	3.47	20,929	2,015,612	4.30	388,655
1933	407,817	44,034,064	4.82	20,537	2,601,352	5.65	427,280
1934	449,322	97,898,519	9.73	23,848	5,770,109	11.23	425,615
1933:							
Dec.	39,461	5,869,556	6.75	1,888	293,690	6.94	37,573
1934:							
Jan.	47,963	7,403,123	6.89	1,975	352,116	7.96	45,988
Feb.	34,335	5,262,711	6.84	2,133	476,232	9.97	32,202
Mar.	41,119	6,765,173	7.34	2,947	583,313	8.83	38,172
April	43,841	8,232,746	8.37	2,814	588,453	9.18	41,027
May	48,494	10,001,239	9.21	2,389	544,212	10.17	46,105
June*	47,289	10,747,464	10.14	2,012	501,499	11.33	45,277
July	41,443	9,670,617	10.41	2,366	660,199	13.99	39,077
August	31,531	7,873,690	11.15	1,393	400,433	12.83	30,138
Sept.	31,074	8,293,859	11.92	1,665	474,446	12.72	29,409
Oct.	28,318	8,203,447	12.93	2,058	620,754	13.46	26,260
Nov.	36,325	10,470,076	12.87	1,230	327,672	11.89	35,095
Dec.	17,590	4,974,374	12.62	866	240,780	12.46	16,724
1935:							
Jan.	39,675	10,852,308	12.21	977	278,229	12.72	38,698
Feb.	47,271	12,291,242	11.61	1,845	480,440	11.62	45,426
March	45,350	11,801,152	11.62	1,868	486,379	11.62	43,482
April	39,735	10,096,487	11.34	1,096	285,903	11.64	38,639
May	29,278	7,171,025	10.98	793	202,402	11.39	28,485
June	31,240	7,523,598	10.75	524	153,595	13.10	30,716
July	46,987	11,666,577	11.08	489	132,173	12.06	46,498
August	40,249	10,419,056	11.56	476	130,464	12.23	39,773
Sept.	34,659	8,637,048	11.12	468	120,438	11.48	34,191
Oct.	35,091	8,742,222	11.12	651	188,518	12.92	34,440
Nov.	25,050	6,137,160	10.94	380	101,793	11.95	24,670

* Revised.

United States Imports of Guayule, Balata, Jelutong, Liquid Latex

(All Quantities in Long Tons)

	Guayule Tons	Guayule Dollars	Balata Tons	Balata Dollars	Jelutong Tons	Jelutong Dollars	Liquid Latex (1) Tons	Liquid Latex (1) Dollars
1924	1,356	536,392	464	568,456	6,165	1,237,100	2,157	864,059
1925	3,781	1,803,448	517	574,750	6,749	1,642,531	3,853	3,537,810
1926	4,305	2,562,096	354	327,213	7,263	3,127,757	3,388	4,680,386
1927	5,018	2,674,957	582	447,246	7,785	2,448,657	1,116	876,077
1928	3,075	1,755,685	731	430,855	7,552	2,540,059	4,167	2,185,579
1929	1,231	545,175	728	566,964	8,203	2,458,136	3,728	1,787,997
1930	1,096	347,388	501	422,684	5,907	1,403,244	4,449	1,506,804
1931	—	—	1,208	411,692	5,777	1,019,010	4,650	884,355
1932	—	—	708	147,403	4,607	616,596	5,085	601,999
1933	—	—	1,658	2,261,869	5,989	944,895	11,085	1,833,671
1934	402	75,349	1,054	438,209	4,988	943,752	13,070	3,633,253
1934:								
Dec.	—	—	6	2,458	192	31,947	581	184,588
1935:								
Jan.	—	—	81	34,687	448	80,097	848	287,583
Feb.	—	—	62	20,981	222	33,850	573	179,583
March	—	—	57	15,917	488	80,643	1,290	354,654
April	—	—	51	11,452	419	58,429	1,721	415,100
May	51	9,464	62	12,931	332	51,805	1,427	380,844
June	105	19,502	75	23,809	330	50,165	591	152,665
July	51	9,800	49	15,758	388	62,736	1,144	303,518
August	50	9,464	31	8,963	445	82,179	1,234	370,431
Sept.	18	3,245	29	6,090	1,682	407,418	1,048	291,652
Oct.	48	8,112	27	7,641	208	33,262	1,287	342,101
Nov.	70	11,931	39	11,706	269	50,657	1,023	261,668

(1) Weight given in pounds of dry rubber contained in latex.

U. S. Consumption of Crude Rubber

(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)
(All Quantities in Long Tons)

Figures on Monthly Basis

	1928	1929	1930	1931	1932	1933	1934	1935
Jan.	34,403	43,002	35,194	28,557	29,648	22,645*	39,284*	47,103
Feb.	33,702	41,594	33,302	28,797	31,821	21,392*	40,609	43,187
Mar.	35,688	44,730	35,540	32,788	29,505	17,483*	47,097	42,620
Apr.	32,772	47,521	39,686	33,321	27,518	25,928	44,853*	44,714
May	37,333	49,233	39,386	37,817	30,957	44,074	42,918*	41,568
June	37,676	43,227	34,195	37,916	41,475	50,743*	40,147*	36,623
July	37,407	41,526	29,508	31,397	29,976	49,614*	32,553*	36,384
Aug.	42,927	38,274	30,850	27,586	23,721	44,428*	33,216*	39,242
Sept.	39,882	34,707	25,515	23,638	23,847	35,281*	30,258*	37,553
Oct.	40,857	34,800	27,516	22,277	22,286	31,543*	31,253*	42,436
Nov.	37,461	27,659	23,691	22,943	23,231	28,831*	34,748*	42,778
Dec.	31,232	25,531	21,687	21,409	18,015	28,757*	36,662	
Tot.	441,340	469,804	375,980	348,986	332,000	400,719*	454,350*	

* Revised.

Reclaimed Rubber in the United States

(All Quantities in Long Tons)

Year	Production	Consumption	% to Crude	Stocks*	Year	Production	Consumption	% to Crude	Stocks*
1925	132,930	137,105	35.6	13,203	**1930**	157,967	153,497	40.8	22,006
1926	180,582	164,500	45.9	23,213	**1931**	133,351	124,126	33.9	19,257
1927	189,144	178,471	47.6	24,980	**1932**	75,608	77,504	23.4	16,354
1928	208,516	223,000	50.4	24,785	**1933**	99,560	81,602	19.9	20,746
1929	218,954	226,588	48.4	27,464	1934	110,010	100,597	22.3	23,079

Figures on Monthly Basis

1934:									
Jan.	9,828	7,000	17.8[a]	24,263	July	9,446	8,175	25.1[a]	24,926
Feb.	9,504	7,646	18.8	23,356	Aug.	8,160	8,493	25.5	24,607
Mar.	11,479	9,683	20.6	25,113	Sept.	6,974	7,028	23.2	24,540
Apr.	10,185	9,387	20.9	22,033	Oct.	8,145	8,167	26.1	24,511
May	10,848	9,500	22.1	22,887	Nov.	7,268	7,775	22.3	23,999
June	10,820	9,459	23.5	23,664	Dec.	7,353	8,284	22.6	23,079
1935:									
Jan.	10,465	11,261	23.9	22,291	July	8,421	8,396	23.1	17,810
Feb.	10,072	9,374	23.3	22,989	Aug.	9,557	8,795	22.4	18,272
Mar.	10,549	9,741	22.9	20,637	Sept.	9,041	8,774	23.4	18,260
Apr.	10,315	10,466	23.4	18,716*	Oct.	11,926	9,662	22.8	19,640
May	10,223	9,938	23.9	18,541	Nov.	11,482	9,084	21.2	21,478
June	8,590	8,710	23.8	17,932	Dec.	.....	.....	...	.....

* Stocks on hand at the end of month or year.
[a] Revised.

U. S. Consumption of Gasoline

(Bureau of Mines Statistics)
(In Thousands of Barrels of 42 Gallons)

	1933 *	1934 *	1935		1933 *	1934 *	1935
January	26,397	29,489	28,062	August	37,400	39,105	42,836*
February ..	23,320	25,310	26,432	September .	34,580	34,669	37,862
March	28,123	30,577	31,997	October	33,022	37,674	41,401
April	29,791	32,736	36,076	November ..	30,312	34,998	35,956
May	33,709	38,071	39,089	December .	28,572	30,581	
June	37,699	36,430	37,884				
July	34,087	37,466	41,203	Total	377,003	407,106	

* Revised on basis of final annual figures issued by Bureau of Mines.

Rims Inspected and Passed in U. S.

(Tire and Rim Association Reports)

	Total		Total		Total
1924	21,863,311	**1928**	24,247,282	**1932**	6,261,336
1925	26,001,664	**1929**	24,141,502	**1933**	8,713,962
1926	24,199,524	**1930**	17,364,096	1934	12,255,118
1927	19,700,003	**1931**	11,253,800	**1935**	.....

1935:		**1935:**		**1935:**	
January ...	1,868,723	May	1,561,434	September .	1,052,044
February ..	1,616,398	June	1,428,314	October ...	1,648,757
March	1,724,077	July	1,339,353	November	1,804,473
April	1,907,032	August	797,827	December ..	.....

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Ave.
1933																																
October		7 7/16	7 7/16		7 7/16		7 11/16		7 11/16	7 11/16	7 7/16		7 7/16	7 7/16		7 7/16	7 7/16	7 7/16	6 11/16	7 1/16			7 1/16	7 1/16	7 1/16	7 7/16	7 7/16	7 11/16				7 7/16
November		7 7/16	8		7 7/16		8		8 5/16		8 5/16		8 5/16	8 5/16		8 5/16	8 7/16		9	9 1/16			9 1/16	9 1/16		8 7/16	8 7/16	8 5/16				8 5/16
December		9 5/16		8 5/16	9 5/16		8 11/16		8 5/16		8 5/16		8 5/16	8 5/16		8 11/16			8 11/16	8 11/16						8 5/16					
1934																																
January		9	8 11/16	9	9	9	9	8 5/16	8 5/16	8 5/16	8 5/16	8 5/16	8 5/16	8 5/16	9 1/16	9	8 5/16	9 1/16	9 1/16	9	9 1/16			9 1/16	9 1/16	9 1/16	10 5/16	10	10 5/16	10 5/16	10	10	9 15/16
February		9 1/16	9 11/16		10 1/16	10 5/16	10 5/16	10 5/16	10 5/16								10 1/16															
March		10 1/2	10 1/2		10 1/16	10 5/16	10 5/16	10 1/16	11 1/16								11 1/16															
April		11 3/16	11 3/16	11 5/16	11 3/16	11 3/16	11 7/16		11 7/16																							
May		14 5/16	14 7/16	15	15 1/16	15 1/16	15 1/16	15 1/16																								
June		13		12 3/4				13 1/4																								
July		14	14 7/16		14 5/16	14 5/16	14 5/16	14 3/4	14 5/16																							
August		14 7/16	15																													
September																																
October		14 5/16		15 9/16	15 11/16	15 7/16	15 5/16	15 3/4	15 5/16	15 5/16	15 5/16	15 7/16	15 5/16	15 5/16	15 5/16	15 7/16	15 5/16	15 7/16	15 7/16														
November		13 3/16	13 3/16	14	13	13	13 3/16	13 3/16	13 3/16	13 3/16	13 3/16		13 3/16	13 3/16	13 3/16		14 1/16	14 5/16	15	15													
December		13 5/16		13	13		13 3/16	13 1/4		12 11/16	12 7/16	12 11/16	12 7/16	12 11/16	13	13	12 7/16	13	13	13	12 3/4												
1935																																
January		13 1/4	13 1/2	13 1/2	13 1/2		13 3/4	13 3/4	13 5/16	13 5/16	13 3/16	13 1/4		13 1/4	12 7/16	13 1/16	13 1/16	13 1/16	13	13			12 1/8	12 3/4	12 3/4	12 3/4	12 5/16	12 1/2	12 5/16	12 1/16	12 1/16	13 1/16
February		12 3/4		12 3/4	12 3/4	12 3/4	12 5/16	12 7/16	13		13	13 1/4	13	11 1/4	13	12 7/16	13	13	13	13			13 1/16	13 1/16	13 1/16	12 7/16	12 5/16	12 5/16	12 5/16	12 5/16	12 5/16	12 7/16
March		12 3/4		12 3/4	12 3/4	12	12 1/16	12 1/16	12	11 3/16	11 3/16	11 3/16	11 3/16	11 3/16	11 3/16	11 3/16	11 3/16	11 3/16	11 3/16	11 3/16			11 3/16	11 3/16	11 3/16	11 3/16	11 3/16	11 3/16	11 3/16	11 3/16	11 3/16	11 3/16
April		11 3/16	11 3/16	11 3/16	11	11	11 1/16	11 1/16	11 3/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16			11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16
May		11 1/2	11 3/16	11 1/2	11 1/2	11 1/2	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16			11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16
June		12 3/16	12 3/16	12 1/2	12 1/2	12 1/2	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16			12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16
July		12 1/16	12 3/16	12 1/2	12 1/2	12 1/2	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16			12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16
August		12 1/16	12 3/16	12 1/2	12 1/2	12 1/2	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16			12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16
September																																
October		11 1/16	11 3/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16			11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16
November		11 1/16	11 3/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16			11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16	11 1/16
December		13 1/16	12 3/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16			12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16	12 1/16
1936																																
January		13 1/16	13 3/16	13 3/16		13 3/16	13 1/8	13 1/8	13 7/16																							

Average Spot Closing Prices—Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1929

Year	Cents	Year	Cents	Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	60.15	1922	17.50	1926	48.50
1911	141.30	1915	65.85	1919	48.70	1923	29.45	1927	37.72
1912	121.60	1916	72.50	1920	36.30	1924	26.20	1928	22.48
1913	82.04	1917	72.23	1921	16.36	1925	72.46	1929	20.55

Average Monthly Price per Pound Since 1928

	1929 Cents	1930 Cents	1931 Cents	1932 Cents	1933 Cents	1934 Cents	1935 Cents
Jan.	20.14	15.24	8.34	4.38	3.08	9.32	13.10
Feb.	23.7	15.85	7.70	4.03	2.95	10.45	12.92
Mar.	24.55	15.34	7.71	3.35	3.01	11.01	11.51
Apr.	21.18	14.93	6.43	3.02	3.56	12.10	11.55
May	21.46	14.24	6.49	3.09	4.95	13.26	12.05
June	20.64	12.45	6.35	2.66	6.15	13.51	12.57
July	21.30	11.24	6.37	2.89	8.01	14.60	12.10
Aug.	20.59	9.96	5.38	3.63	7.31	15.47	11.98
Sept.	20.37	8.28	5.08	3.84	7.30	15.36	11.55
Oct.	19.67	8.20	4.87	3.65	7.64	13.96	12.62
Nov.	16.62	9.01	4.65	3.44	8.66	13.04	13.15
Dec.	16.12	9.05	4.64	3.24	8.87	12.98	13.28
Average for Year	20.55	11.98	6.17	3.49	5.96	12.92	12.37

London Closing Prices of Ribbed Smoked Sheets

(In Pence Per Pound)

Day	Oct.	Nov.	Dec.	Jan.	Day	Oct.	Nov.	Dec.	Jan.
1	5 11/16	6 7/16			17	6 1/4		6 7/16	
2	5 5/8	6 3/8	6 1/4	6 7/16	18	6 1/4	6 7/16	6 3/8	
3	5 11/16		6 3/8	6 7/16	19	6 1/4	6 7/16	6 3/8	
4	5	6 7/16	6 1/4	6 7/16	20		6 7/16	6 3/8	
5	5	6 3/8	6 7/16		21	6 1/4	6 7/16	6 7/16	
6		6 3/8	6 7/16	6 5/8	22	6 1/4	6 7/16		
7	5 11/16	6 7/16	6 7/16	6 5/8	23	6 3/8	6 7/16	6 3/8	
8	5 11/16	6 7/16		6 7/16	24	6 3/8		6 3/8	
9	5 5/8	6 7/16	6 7/16	6 7/16	25	6 3/8	6 1/4		
10	6		6 7/16		26	6 7/16	6 1/4	6 3/8	
11	6 1/16	6 7/16	6 7/16		27		6 7/16		
12	6 1/8	6 7/16	6 7/16		28	6 7/16	6 7/16		
13		6 7/16	6 7/16		29	6 3/8	6 7/16		
14	6 1/16	6 3/8	6 3/8		30	6 1/2	6 3/8	6 7/16	
15	6 7/16	6 3/8			31	6 3/8		6 1/2	
16	6 7/16	6 7/16	6 7/16						

Average Monthly Price Per Pound

Month	1932 Pence	1933 Pence	1934 Pence	1935 Pence	Month	1932 Pence	1933 Pence	1934 Pence	1935 Pence
Jan.	3.052	2.264	4.429	6.434	Aug.	2.654	3.811	7.401	5.696
Feb.	2.760	2.093	4.920	6.292	Sept.	2.485	3.728	7.409	5.508
Mar.	2.047	2.099	5.135	5.745	Oct.	2.425	3.957	6.806	6.130
Apr.	1.876	2.323	5.712	5.604	Nov.	2.518	4.096	6.294	6.308
May	1.825	2.966	6.207	5.822	Dec.	2.444	4.200	6.295	6.340
June	1.750	3.392	6.245	6.027	Average for Year	2.434	3.233	6.159	5.976
July	1.875	3.860	7.053	5.801					

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Date	Nov.	Dec.	Jan.	Date	Nov.	Dec.	Jan.	Date	Nov.	Dec.	Jan.
1	11.40			11		11.80		22	12.30		
2	11.35	12.20	12.20	12	12.00	11.85		23	12.25	12.05	
3		12.35	12.10	13	12.00	12.00		24		12.00	
4	11.35	12.25	12.10	14	12.20	11.90		25	12.25		
5		12.20		15	12.35			26	12.25	11.90	
6	11.45	12.20	12.15	16	12.30	11.65		27	12.25	11.90	
7	11.55	12.20	11.80	17		11.80		28		11.90	
8	11.70		11.90	18	12.20	11.75		29	12.20		
9	11.80	12.05	11.85	19	12.20	11.80		30	12.15	11.95	
10		12.10		20	12.35	11.90		31		12.10	
				21	12.45	12.05					

Average Monthly Price Per Pound

	1932 Cents	1933 Cents	1934 Cents	1935 Cents		1932 Cents	1933 Cents	1934 Cents	1935 Cents
Jan.	6.65	6.23	11.25	12.70	Aug.	7.43	9.55	13.40	11.48
Feb.	6.85	6.05	12.28	12.58	Sept.	6.30	9.64	13.00	10.80
Mar.	6.86	6.39	12.30	11.63	Oct.	6.30	9.58	12.48	11.28
Apr.	6.16	7.02	11.80	11.73	Nov.	6.22	10.04	12.53	12.01
May	5.72	8.64	11.44	12.25	Dec.	6.00	10.17	12.76	11.99
June	5.02	9.47	12.20	11.89	Average for Year	6.41	8.63	12.36	11.88
July	5.87	10.76	12.84	12.26					

World Stocks of Crude Rubber

ON HAND OR AFLOAT TO THE U. S.

At End of	ON HAND 1933	ON HAND 1934	ON HAND 1935	AFLOAT 1933	AFLOAT 1934	AFLOAT 1935	ON HAND AND AFLOAT 1933	ON HAND AND AFLOAT 1934	ON HAND AND AFLOAT 1935
Jan.	396,376	368,660	346,084	32,539	45,768	42,066	428,915	414,428	388,150
Feb.	381,794	358,681*	339,335*	32,898	53,063	42,969	414,692	411,744*	382,304*
Mar.	390,135	352,897*	338,700	29,531	54,722	44,485	419,666	407,619*	383,185
Apr.	382,167	351,073*	334,954	30,745	56,251	37,651	412,912	407,324*	372,605
May	364,623	350,935*	319,281	43,342	57,921	44,375	407,965	409,250	363,656
June	333,954	358,461*	320,470	63,608	46,698	55,581	397,562	404,847	376,051
July	326,609	365,072	330,528	57,435	45,869	49,018	384,044	410,941	379,546
Aug.	325,148	363,711*	329,548	53,084	40,278	47,724	378,232	403,989*	377,272
Sept.	334,637	360,623*	326,236	57,255	38,831	43,413	391,982	399,454	369,649
Oct.	343,579	362,571*	317,850	58,568	38,247	49,913	402,147	400,818*	367,763
Nov.	353,852	362,826*	303,162	57,140	38,625	46,588	410,992	401,451*	349,750
Dec.	364,541	352,632		55,606	47,644		419,147	400,276	

(Rubber Manufacturers' Association figures raised to 100%)

* Revised.

STOCKS IN GREAT BRITAIN

Stocks in London

(No. of Tons in Wharves and Warehouses, including Latex)

At end of	1933	1934	1935	At end of	1933	1934	1935
Jan.	36,481	38,570	81,807	July	41,178	50,490	99,226
Feb.	37,182	38,752	87,605	Aug.	39,480	48,953	101,574
Mar.	40,689	40,501	92,664	Sept.	39,237	56,103	101,198
Apr.	40,911	42,413	94,361	Oct.	37,101	63,079	94,749
May	41,998	42,190	95,722	Nov.	36,139	67,656	90,542
June	43,032	45,674	98,077	Dec.	35,615	72,285	

At End of Recent Weeks

	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
1935					
Aug.	98,950	99,423	100,533	99,860	100,972
Sept.	101,246	101,709	101,357	100,542	
Oct.	100,635	100,405	97,642	94,560	
Nov.	94,178	90,736	90,145	90,496	90,026
Dec.	88,904	87,090	87,664	87,097	

Stocks in Liverpool

1935					
Aug.	74,948	75,778	75,752	75,503	75,733
Sept.	76,012	76,303	76,396	76,416	
Oct.	76,746	76,139	76,092	76,070	
Nov.	76,363	76,271	76,154	75,996	76,370
Dec.	76,622	76,546	77,430	77,452	

STOCKS IN PENANG AND SINGAPORE

(Stocks held by Dealers—Quantities in Long Tons)

End of	1932	1933	1934	1935	End of	1932	1933	1934	1935
Jan.	48,850	22,525	40,405	50,588	July	17,017	36,972	65,099	41,266
Feb.	46,954	21,530	41,884	51,628	Aug.	20,649	38,601	59,227	36,117
Mar.	46,591	24,594	47,933	46,046	Sep.	20,415	36,948	54,905	29,122
Apr.	39,663	25,460	48,431	43,295	Oct.	23,158	37,282	54,155	30,111
May	38,690	29,822	76,393	45,625	Nov.	25,419	39,018	49,282	
June	19,770	34,676	73,218	43,866	Dec.	25,341	38,269	51,255	

STOCKS IN OTHER CENTRES

	Malaya Mainland	Holland	Colombo	Para and Manaos
End of 1935:				
Jan.	33,609	1,397	5,926	3,477
Feb.	32,062	1,534	4,753	3,153
Mar.	31,844	1,551	3,917	3,214
Apr.	33,383	1,536	4,245	3,019
May	31,896	1,499	4,910	2,643
June	33,823	1,481	4,659	2,012
July	33,949	1,448	4,700	1,222
August	30,660	1,455	4,866	965
Sept.	29,986	1,442	4,402	1,004
Oct.	29,975	1,440	3,790	
Nov.	29,805	1,550	4,393	

RUBBER STOCKS AFLOAT

	Afloat for United States	Afloat for Europe	All Other * Afloat	Total * Afloat
End of: 1934				
August	40,278	36,060	21,001	97,349
September	38,831	39,630	35,215	113,716
October	38,247	40,560	20,061	98,868
November	38,625	39,870	21,342	99,837
December	47,644	41,200	36,132	124,976
End of: 1935				
January	42,066	35,600	35,334	113,000
February	42,969	28,750	31,281	103,000
March	44,485	30,400	17,115	92,000
April	37,651	31,400	29,949	99,000
May	44,375	30,300	29,325	104,000
June	55,581	27,485	17,934	101,000
July	49,018	29,150	17,832	96,000
August	47,724	32,800	21,476	102,000
September	43,413	31,090	26,497	101,000
October	49,913	30,000	19,087	99,000
November	46,588	28,000P	20,412	95,000

* *Total Afloat* is an arbitrary estimate based on 1½ months' shipments as adopted by the Department of Commerce. *All Other Afloat* is determined by subtracting the amount of stocks in transit to the United States and Europe from the estimated total.

P—Preliminary estimate.

U. S. Tire and Tube Statistics[1]

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1927	1928	1929	1930	1931	1932	1933	1934
Production	64,439	77,944	68,726	50,965	48,739	40,085	45,304	47,233
Shipments	64,059	74,296	69,395	53,638	48,151	40,260	44,094	46,687
Inventory[2]	10,264	13,624	11,838	9,003	7,775	7,644	8,888	9,455

Figures for Recent Months

	PRODUCTION 1933	1934	1935	SHIPMENTS 1933	1934	1935	INVENTORY 1933	1934	1935
Jan.	2,258	3,922	4,626	2,597	3,222	3,663	7,237	9,684	10,398
Feb.	2,339	4,335	4,383	2,292	3,285	3,287	7,377	10,725	11,530
Mar.	2,038	5,180	4,346	2,092	4,223	4,204	7,290	11,651	11,675
Apr.	3,123	4,470	4,512	3,654	4,438	5,144	6,778	11,981	11,003
May	5,189	4,456	4,175	5,180	5,332	4,067	6,760	11,127	11,131
June	6,100	4,342	3,910	6,305	5,228	4,262	6,615	10,219	10,755
July	5,714	3,353	3,532	5,497	4,157	5,447	6,844	9,437	8,850
Aug.	4,994	3,533	3,993	4,707	4,308	4,739	7,070	8,697	7,805
Sept.	3,999	2,936	3,787	3,503	3,183	3,303	7,595	8,419	8,288
Oct.	3,249	3,287	4,051	2,537	3,010	4,095	8,462	8,657	8,291
Nov.	3,039	3,341		2,197	3,191		9,247	8,779	
Dec.	3,082	3,778		3,531	3,109		8,888	9,455	

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1927	1928	1929	1930	1931	1932	1933	1934
Production	70,823	80,180	68,829	52,420	48,333	36,891	42,546	46,228
Shipments	72,896	77,127	70,592	54,938	50,021	37,911	41,391	45,046
Inventory[2]	13,692	16,117	12,807	9,999	7,922	6,749	7,815	9,180

Figures for Recent Months

	PRODUCTION 1933	1934	1935	SHIPMENTS 1933	1934	1935	INVENTORY 1933	1934	1935
Jan.	2,093	3,530	4,259	2,535	3,199	3,722	6,197	8,403	9,621
Feb.	2,224	4,077	4,171	2,102	3,323	3,362	6,357	8,445	10,466
Mar.	1,883	5,194	4,123	1,902	4,118	4,168	6,369	10,244	10,406
Apr.	2,853	4,735	4,259	3,051	4,342	4,453	6,189	10,585	10,170
May	5,189	4,359	3,892	5,180	4,902	3,451	6,760	10,043	10,615
June	5,448	4,097	3,480	5,778	5,309	4,024	6,097	8,795	10,050
July	5,603	3,531	3,251	5,211	4,323	5,269	6,440	8,053	8,005
Aug.	4,916	3,680	3,894	4,687	4,198	4,556	6,628	7,555	6,939
Sept.	3,827	3,110	4,125	3,472	3,024	3,426	7,008	7,639	7,565
Oct.	3,506	3,219	4,435	2,676	2,689	4,027	7,831	8,151	8,053
Nov.	2,863	3,169		2,103	2,767		8,625	8,503	
Dec.	2,631	3,503		3,410	2,850		7,815	9,180	

(1) Rubber Manufacturers' Association figures, raised to 100%. The Association estimates its figures to be 75% complete up until 1929 and 80% complete for 1929-1933. Beginning 1934, the Association reported its figures to be 97% complete.

(2) Held by manufacturers at end of period indicated.

Automobile Production

	United States Total	Passenger Cars	Trucks	Canada Total	Passenger Cars	Trucks	Grand Total
1928	4,357,384	3,826,613	530,771	242,382	196,737	45,645	4,599,944
1929	5,358,420	4,587,400	771,020	263,295	207,498	55,797	5,621,715
1930	3,355,986	2,814,452	540,534	154,192	125,442	28,750	3,510,178
1931	2,389,730	1,973,090	416,640	82,621	63,477	19,144	2,472,351
1932	1,370,678	1,135,493	235,187	60,816	50,718	10,098	1,431,494
1933*	1,920,057	1,573,512	346,545	65,924	53,855	12,069	1,992,126
1934	2,778,739	2,190,099	588,640	116,890	92,538	24,352	2,895,629
1934							
Nov.*	78,465	45,556	32,909	1,697	1,052	645	80,162
Dec.	183,187	128,059	55,128	2,732	2,334	398	185,919
1935							
Jan.*	292,817	229,233	63,584	10,607	8,269	2,338	303,424
Feb.*	335,699	275,623	60,076	18,114	13,885	4,229	353,813
March*	429,834	361,816	68,018	21,975	18,179	3,796	451,809
April*	477,746	401,628	76,118	24,121	20,686	3,435	501,867
May*	364,727	307,522	57,205	20,765	17,093	3,672	385,492
June*	361,321	296,609	64,712	15,745	12,276	3,469	377,066
July*	337,044	276,084	60,960	13,069	9,471	3,598	350,113
Aug.	240,051	182,389	57,662	7,692	5,524	2,168	247,743
Sept.	89,805	57,285	32,520	5,323	3,819	1,504	95,128
Oct.	275,021	214,609	60,412	8,313	7,128	1,185	283,334
Nov.	398,024	338,425	59,599	13,496	12,042	1,454	411,520

* Revised.

Exports of Crude Rubber from Principal Producing Countries

(Long Tons)

	BRITISH MALAYA [1]							DUTCH EAST INDIES [5]							
	Gross Exports	Imports	Gross Exports Minus Imports	Ceylon [2]	India & Burma [3]	Sarawak [4]	British North Borneo [3]	Siam [4]	Java & Madura	Sumatra E. Coast	Other D.E.I.	Indo-China [3]	Amazon Valley	All Other [6]	World Total [7]
1923	252,016	70,432	181,584	39,971	6,416	5,705	4,237	1,718	32,930	46,344	57,822	5,067	16,765	7,856	406,415
1924	259,706	108,524	151,182	39,997	7,697	6,699	4,621	2,962	42,446	54,497	80,347	6,688	23,165	9,065	429,366
1925	316,825	158,022	158,803	49,566	10,082	5,424	5,377	5,377	46,757	65,499	120,626	7,881	25,298	13,797	514,437
1926	391,328	151,243	240,085	58,962	9,874	9,155	6,079	4,027	52,186	71,413	121,231	8,203	24,298	16,017	621,530
1927	371,322	182,845	188,477	55,356	11,321	10,923	6,582	5,472	35,297	77,815	142,171	8,645	28,782	15,633	606,474
1928	409,430	149,787	259,643	57,267	10,790	10,087	6,698	4,813	58,848	82,511	121,770	9,548	21,129	10,690	653,794
1929	574,836	163,092	411,744	81,584	11,663	11,077	7,381	5,018	65,990	87,789	134,037	9,696	21,148	6,767	853,894
1930	547,043	133,876	413,167	76,970	10,782	10,309	6,781	4,251	69,755	79,396	115,254	7,665	14,260	5,651	814,241
1931	519,740	125,506	394,234	61,769	8,470	10,451	6,247	4,218	75,952	87,747	116,009	11,696	12,121	3,292	792,203
1932	478,252	92,539	385,713	48,973	3,888	6,960	4,664	3,451	61,312	79,837	85,871	13,883	6,450	1,816	702,818
1933	573,412	167,377	406,035	63,351	4,527	10,874	7,555	7,765	73,851	91,861	149,659	18,394	9,883	2,737	846,312
1933:															
Oct.	61,002	17,390	43,612	5,674	271	959	750	979	6,329	8,682	15,170	1,426	965	314	85,131
Nov.	54,599	20,142	34,457	6,097	516	1,020	750	1,303	6,684	9,951	14,474	1,553	956	366	78,127
Dec.	57,579	18,110	39,469	7,435	964	989	750	1,046	7,030	10,183	17,274	3,779	930	302	90,151
1934:															
Jan.	55,055	16,128	38,927	6,929	1,531	1,197	805	1,290	6,513	7,975	13,913	1,109	576	127	80,892
Feb.	57,867	15,027	42,840	8,620	775	1,005	805	1,264	6,706	9,211	13,696	1,232	831	105	87,090
March	58,515	19,907	38,608	6,750	1,412	1,360	806	1,363	8,655	10,539	19,084	1,968	846	113	91,504
April	56,748	20,957	35,791	5,157	762	1,447	894	1,311	7,282	9,808	19,250	1,330	440	236	83,708
May	69,403	25,691	43,712	8,870	1,106	1,892	1,397	997	12,104	14,606	26,598	1,243	726	328	113,579
June	53,282	20,981	32,301	5,397	1,425	1,886	644	1,497	4,860	6,192	15,956	1,593	765	377	72,893
July	53,335	22,829	30,506	3,818	710	1,662	1,048	2,399	5,762	7,369	14,415	1,703	353	252	69,997
Aug.	52,641	17,865	34,776	4,948	552	1,714	1,048	1,908	5,340	8,901	11,356	1,610	710	251	73,114
Sept.	61,051	17,889	43,162	6,555	294	1,438	839	1,626	5,722	10,738	14,688	1,665	764	222	87,713
Oct.	47,045	10,226	36,819	6,544	413	1,412	1,196	1,328	5,970	6,643	5,556	1,413	840	401	68,535
Nov.	51,140	8,759	42,381	6,756	501	953	941	1,356	7,621	7,123	5,338	2,356	1,017	334	76,676
Dec.	59,575	15,375	44,200	8,481	990	1,237	680	2,043	10,865	12,953	12,354	2,956	1,035	239	98,033
1935															
Jan.	56,720	17,142	39,578	5,202	2,269	1,630	1,222	2,614	3,812	5,371	8,704	2,650	1,196	460	74,719
Feb.	50,593	17,676	32,917	5,556	731	1,887	760	2,288	4,395	7,663	15,194	2,076	636	254	74,154
Mar.	47,407	13,437	33,970	3,181	701	1,901	773	2,076	5,592	7,950	7,973	1,472	740	526	66,855
Apr.	53,360	16,029	37,331	2,976	370	1,895	846	1,661	5,574	6,873	12,683	2,827	963	185	74,957
May	51,353	23,720	27,633	4,223	674	2,323	848	2,752	6,217	7,931	21,058	2,138	832	315	76,920
June	49,751	18,637	31,114	3,525	1,077	2,031	603	2,869	5,698	8,258	14,168	2,021	659	393	72,416
July	48,975	11,257	37,718	4,106	580	1,870	1,164	1,939	5,899	5,664	8,373	2,015	427	407	70,162
Aug.	51,873	10,978	40,895	5,683	724	759	566	2,062	4,661	6,923	8,875	2,451	1,150	442	74,541
Sept.	51,247	10,418	40,829	3,970	681	1,797	421	2,278	4,089	5,862	9,422	2,248	1,121	300*	73,018
Oct.	48,258	19,364	28,894	5,932	1,198	2,168	1,040	2,622	3,937	6,698	16,432	2,748	1,000*	300*	72,969
Nov.	43,147	10,518	32,629	4,288	1,806	1,356	455	2,155	3,724	3,963	8,511	2,392	1,000*	300*	62,579

(1) Malayan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, 3,263 in 1926, 2,439 in 1927, 1,437 in 1928, 2,670 in 1929, and 1,274 in 1930. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included—such shipments were equivalent to 18 tons in 1923, 93 tons in 1924, 6 tons in 1925, 20 tons in 1926, about ½ ton in 1927, and 1 ton in 1928, and practically none in 1929, 1930 and 1931. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons in 1924, 2,239 tons in 1925, 44 tons in 1926, 84 tons in 1927, 1,459 tons in 1928, 1,302 tons in 1929, and 2,656 tons in 1930. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Belgium and Netherlands, and includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. * Figure is provisional; final figure will be shown when available.

NOTE: THE FIGURES FOR 1933 ARE REVISED AS OF JANUARY 25, 1935 AND REPRESENT FINAL FIGURES

Net Imports of Crude Rubber into Principal Manufacturing Countries

(*Long Tons*)

	United States [1]	United Kingdom	France (h)	Germany	Canada (ac)	Japan (da)	Italy	Russia (ce)	Australia (cd)	Belgium (d)	Netherlands	Scandinavia (abcdf)	Spain (g)	Czechoslovakia (abcd)	World Total
1919	238,407	42,671	17,685	5,584	6,395	9,753	9,894	75	1,002	3,995	2,771	3,149	2,418	9	343,808
1920	249,530	36,844	13,885	11,890	11,746	5,297	6,123	62	1,815	3,840	5,510	2,292	2,008	567	371,409
1921	179,736	42,087	15,135	21,920	8,124	21,713	3,906	165	1,014	1,705	1,022	1,279	2,245	569	300,620
1922	296,594	11,724	24,352	27,546	9,207	15,934	6,430	2,493	2,643	172	—3,807	1,778	589	567	396,222
1923	301,527	12,700	27,392	18,519	13,277	15,372	8,489	2,986	1,649	2,184	792	2,528	630	1,128	409,173
1924	319,103	—11,550	30,446	22,727	14,299	19,571	8,764	2,346	3,124	2,688	—807	3,178	944	1,370	416,203
1925	385,596	4,061	32,956	33,937	19,683	11,117	11,412	7,088	4,757	2,930	875	3,149	1,155	1,558	520,274
1926	399,981	84,865	34,240	22,775	20,229	18,125	9,809	6,529	9,021	2,498	2,670	4,046	1,299	1,870	617,957
1927	403,472	60,249	34,271	38,892	26,405	20,521	11,381	12,018	9,490	6,482	636	4,224	2,055	2,672	632,768
1928	407,572	4,846	36,498	37,855	30,447	25,621	12,433	15,134	8,430	7,958	2,243	4,418	3,178	3,138	599,771
1929	528,608	122,675	55,093	49,275	35,453	34,284	17,169	11,774	15,886	9,445	3,022	6,440	864	4,650	894,638
1930	458,036	120,069	68,503	45,488	28,793	33,039	18,639	16,387	5,354	10,635	2,924	7,710	2,400	4,468	822,445
1931	475,993	86,170	46,466	39,688	25,261	43,483	10,149	30,671	7,649	11,009	2,220	6,360	2,605	7,717	794,641
1932	393,844	44,086	42,506	45,121	20,917	56,027	14,469	30,637	12,576	9,519	2,851	7,262	4,359	9,444	693,618
1933	398,365	73,335	61,953	54,120	19,332	66,831	19,341	29,830	13,534	11,166	1,243	7,831	5,520	10,402	772,803
1934:															
Apr.	42,262	9,999	3,210	6,701	2,419	5,679	1,966	1,326	415	504	262	1,217	752	465	77,177
May	47,412	9,786	3,634	6,499	2,218	6,905	2,218	4,360	769	214	322	940	140	1,768	87,192
June	46,785	16,564	3,803	6,171	2,208	6,745	1,887	3,145	1,512	837	331	843	1,146	1,624	93,601
July	40,308	12,266	4,051	5,494	2,430	5,739	708	1,640	732	810	540	1,602	747	1,094	78,161
Aug.	31,405	13,728	3,660	3,078	1,948	4,945	1,795	6,829	658	669	239	1,033	277	1,495	71,759
Sept.	30,345	11,254	4,244	2,607	2,770	7,346	1,486	4,487	743	501	339	980	465	477	68,044
Oct.	27,323	18,897	3,424	2,148	3,043	7,227	1,296	3,681	798	693	447	813	675	234	70,719
Nov.	35,982	15,875	3,176	3,425	1,568	5,580	1,764	4,488	516	379	187	1,382	542	215	75,079
Dec.	17,305	15,816	3,605	5,207	2,849	3,904	1,979	6,460	1,312	—168	139	1,143	615	762	60,928
1935															
Jan.	39,546	20,383	5,573	4,286	2,670	4,400	1,613	3,446	1,099	419	158	1,252	468	1,245	86,558
Feb.	45,999	15,609	4,593	3,513	1,558	5,582	4,356	1,810	848	399	477	838	567	1,836	87,985
Mar.	44,772	12,810	4,017	6,353	2,710	4,421	1,582	4,624	1,459	240	331	891	630	741	85,581
Apr.	40,061	11,574	3,306	5,820	1,063	6,635	1,653	3,387	1,150	520	329	1,049	432	789	78,115
May	29,962	12,498	3,828	6,049	3,929	5,429	935	1,937	671	982	272	853	815	774	68,934
June	31,410	10,253	3,210	4,551	1,435	3,373	1,831	3,087	496	1,065	446	780	745	604	66,286
July	47,694	9,454	3,247	4,929	1,319	4,484	1,298	1,823	520	572	157	800	548	185	77,030
Aug.	41,057	14,120	4,508	4,790	2,814	4,453	916	1,227	655	528	413	820	752	673	77,726
Sept.	35,256	11,223	3,740	5,453	1,604	3,590	1,696	1,593	449	806	282	1,030	793	914	
Oct.	35,770	3,184	5,175	6,074	812			4,876	829	539	671	1,000		742	
Nov.	25,756	2,942							783		245				

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—Official statistics of rubber imports by Soviet Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. [1] United States imports of guayule are included in this compilation. * Figure is provisional; final figure will be shown immediately it becomes available.